FIG. 1A

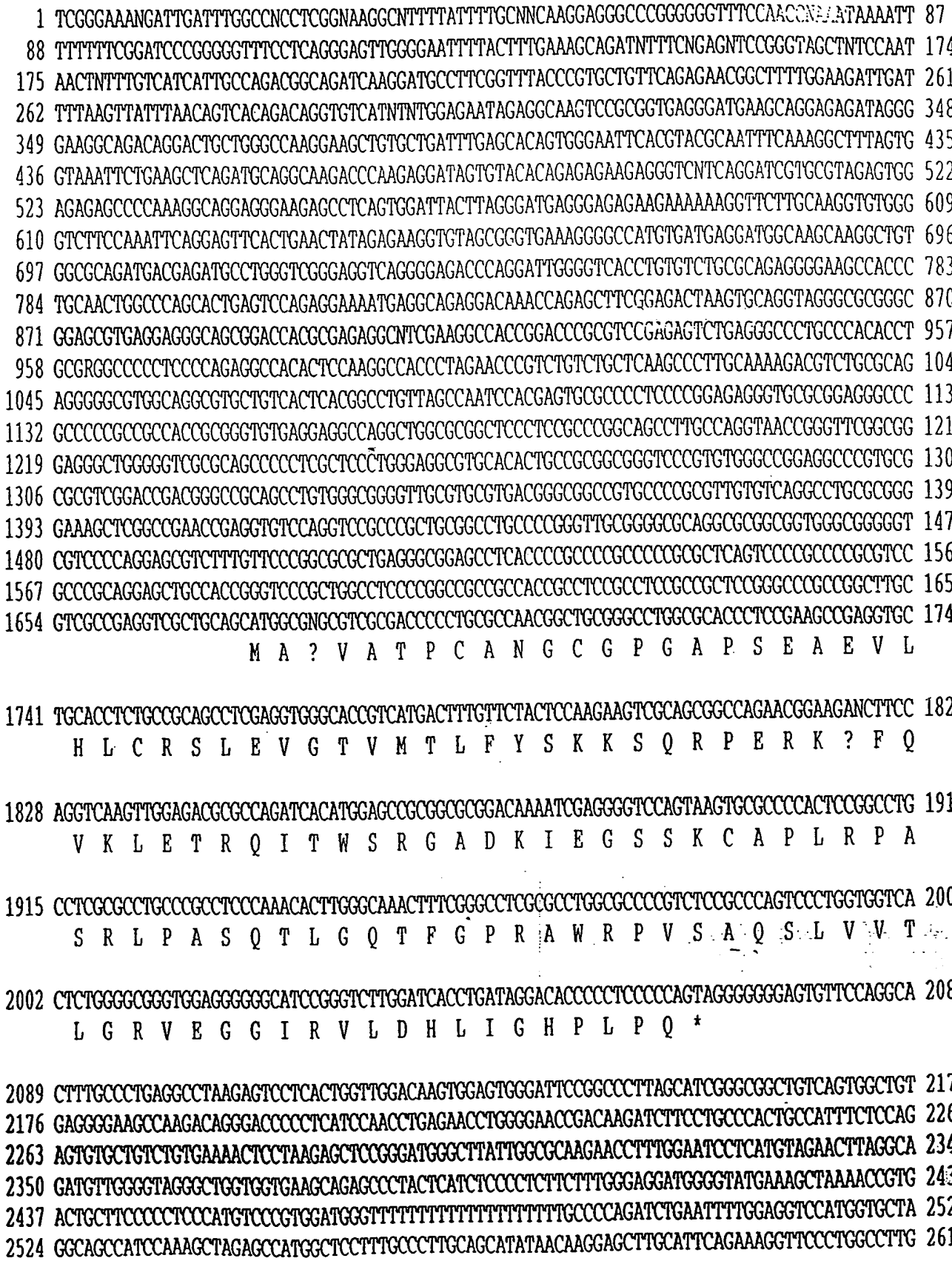
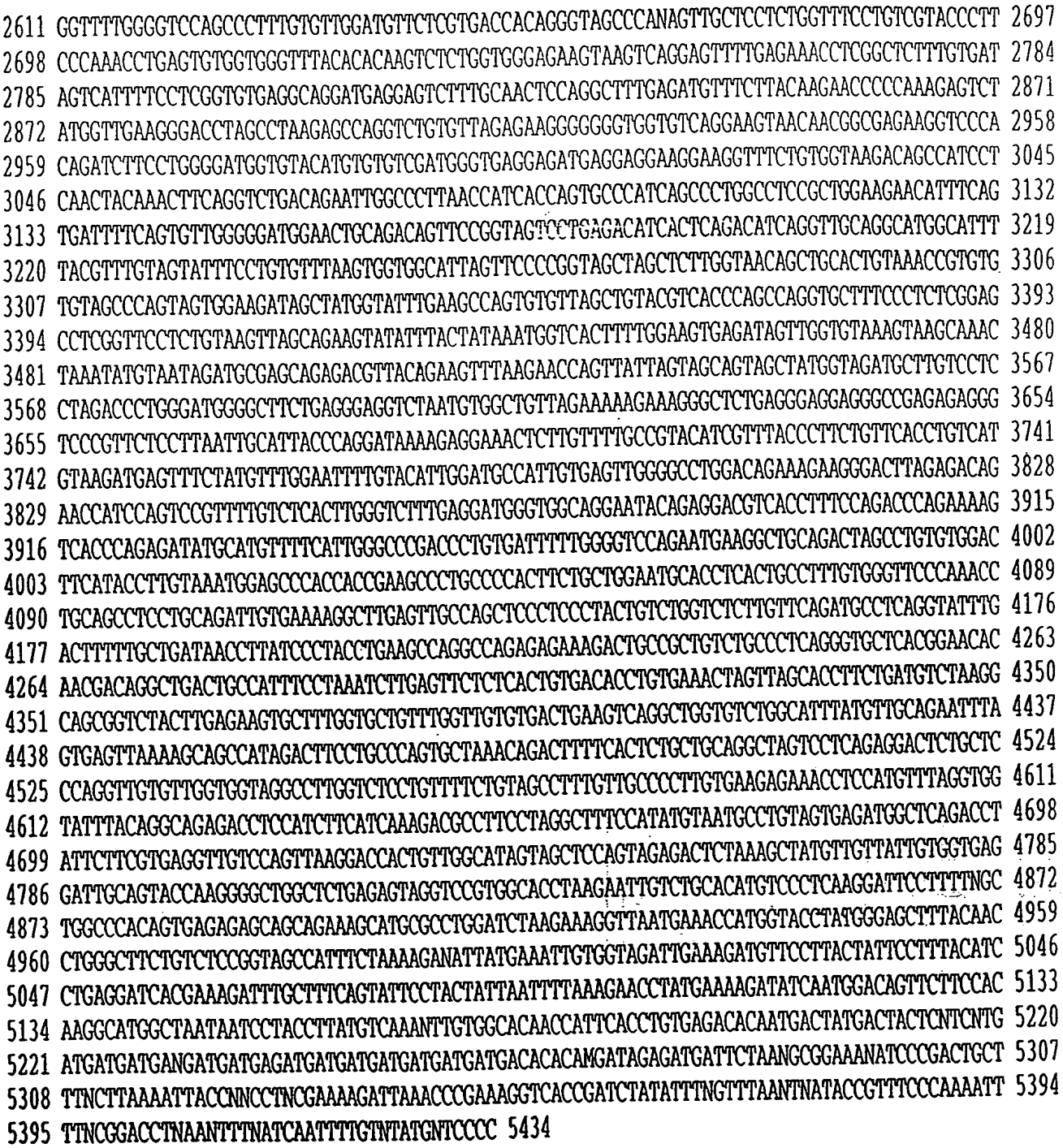

1 TCGGGAAANGATTGATTTGGCCNCCTCGGNAAGGCNTTTTATTTTGCNNCAAGGAGGGCCCGGGGGGTTTCCAACCNNATAAAATT 87
88 TTTTTTCGGATCCCGGGGGTTTCCTCAGGGAGTTGGGGAATTTTACTTTGAAAGCAGATNTTTCNGAGNTCCGGGTAGCTNTCCAAT 174
175 AACTNTTTGTCATCATTGCCAGACGGCAGATCAAGGATGCCTTCGGTTTACCCGTGCTGTTCAGAGAACGGCTTTTGGAAGATTGAT 261
262 TTTAAGTTATTTAACAGTCACAGACAGGTGTCATNTNTGGAGAATAGAGGCAAGTCCGCGGTGAGGGATGAAGCAGGAGAGATAGGG 348
349 GAAGGCAGACAGGACTGCTGGGCCAAGGAAGCTGTGCTGATTTGAGCACAGTGGGAATTCACGTACGCAATTTCAAAGGCTTTAGTG 435
436 GTAAATTCTGAAGCTCAGATGCAGGCAAGACCCAAGAGGATAGTGTACACAGAGAGAAGAGGGTCNTCAGGATCGTGCGTAGAGTGG 522
523 AGAGAGCCCCAAAGGCAGGAGGGAAGAGCCTCAGTGGATTACTTAGGGATGAGGGAGAGAAGAAAAAAGGTTCTTGCAAGGTGTGGG 609
610 GTCTTCCAAATTCAGGAGTTCACTGAACTATAGAGAAGGTGTAGCGGGTGAAAGGGGCCATGTGATGAGGATGGCAAGCAAGGCTGT 696
697 GGCGCAGATGACGAGATGCCTGGGTCGGGAGGTCAGGGGAGACCCAGGATTGGGGTCACCTGTGTCTGCGCAGAGGGGAAGCCACCC 783
784 TGCAACTGGCCCAGCACTGAGTCCAGAGGAAAATGAGGCAGAGGACAAACCAGAGCTTCGGAGACTAAGTGCAGGTAGGGCGCGGGC 870
871 GGAGCGTGAGGAGGGCAGCGGACCACGCGAGAGGCNTCGAAGGCCACCGGACCCGCGTCCGAGAGTCTGAGGGCCCTGCCCACACCT 957
958 GCGRGGCCCCCTCCCCAGAGGCCACACTCCAAGGCCACCCTAGAACCCGTCTGTCTGCTCAAGCCCTTGCAAAAGACGTCTGCGCAG 1044
1045 AGGGGGCGTGGCAGGCGTGCTGTCACTCACGGCCTGTTAGCCAATCCACGAGTGCGCCCCTCCCCGGAGAGGGTGCGCGGAGGGCCC 1131
1132 GCCCCCGCCGCCACCGCGGGTGTGAGGAGGCCAGGCTGGCGCGGCTCCCTCCGCCCGGCAGCCTTGCCAGGTAACCGGGTTCGGCGG 1218
1219 GAGGGCTGGGGGTCGCGCAGCCCCCTCGCTCCCTGGGAGGCGTGCACACTGCCGCGGCGGGTCCCGTGTGGGCCGGAGGCCCGTGCG 1305
1306 CGCGTCGGACCGACGGGCCGCAGCCTGTGGGCGGGGTTGCGTGCGTGACGGGCGGCCGTGCCCCGCGTTGTGTCAGGCCTGCGCGGG 1392
1393 GAAAGCTCGGCCGAACCGAGGTGTCCAGGTCCGCCCGCTGCGGCCTGCCCCGGGTTGCGGGGCGCAGGCGCGGCGGTGGGCGGGGGT 1479
1480 CGTCCCCAGGAGCGTCTTTGTTCCCGGCGCGCTGAGGGCGGAGCCTCACCCCGCCCCGCCCCCGCGCTCAGTCCCCGCCCCGCGTCC 1566
1567 GCCCGCAGGAGCTGCCACCGGGTCCCGCTGGCCTCCCCGGCCGCCGCCACCGCCTCCGCCTCCGCCGCTCCGGGCCCGCCGGCTTGC 1653
1654 GTCGCCGAGGTCGCTGCAGCATGGCGNGCGTCGCGACCCCCTGCGCCAACGGCTGCGGGCCTGGCGCACCCTCCGAAGCCGAGGTGC 1740
M A ? V A T P C A N G C G P G A P S E A E V L
1741 TGCACCTCTGCCGCAGCCTCGAGGTGGGCACCGTCATGACTTTGTTCTACTCCAAGAAGTCGCAGCGGCCAGAACGGAAGANCTTCC 1827
H L C R S L E V G T V M T L F Y S K K S Q R P E R K ? F Q
1828 AGGTCAAGTTGGAGACGCGCCAGATCACATGGAGCCGCGGCGCGGACAAAATCGAGGGGTCCAGTAAGTGCGCCCCACTCCGGCCTG 1914
V K L E T R Q I T W S R G A D K I E G S S K C A P L R P A
1915 CCTCGCGCCTGCCCGCCTCCCAAACACTTGGGCAAACTTTCGGGCCTCGCGCCTGGCGCCCCGTCTCCGCCCAGTCCCTGGTGGTCA 2001
S R L P A S Q T L G Q T F G P R A W R P V S A Q S L V V T
2002 CTCTGGGGCGGGTGGAGGGGGGCATCCGGGTCTTGGATCACCTGATAGGACACCCCCTCCCCCAGTAGGGGGGGAGTGTTCCAGGCA 2088
L G R V E G G I R V L D H L I G H P L P Q *
2089 CTTTGCCCTGAGGCCTAAGAGTCCTCACTGGTTGGACAAGTGGAGTGGGATTCCGGCCCTTAGCATCGGGCGGCTGTCAGTGGCTGT 2175
2176 GAGGGGAAGCCAAGACAGGGACCCCCTCATCCAACCTGAGAACCTGGGGAACCGACAAGATCTTCCTGCCCACTGCCATTTCTCCAG 2262
2263 AGTGTGCTGTCTGTGAAAACTCCTAAGAGCTCCGGGATGGGCTTATTGGCGCAAGAACCTTTGGAATCCTCATGTAGAACTTAGGCA 2349
2350 GATGTTGGGGTAGGGCTGGTGGTGAAGCAGAGCCCTACTCATCTCCCCTCTTCTTTGGGAGGATGGGGTATGAAAGCTAAAACCGTG 2436
2437 ACTGCTTCCCCCTCCCATGTCCCGTGGATGGGTTTTTTTTTTTTTTTTTTTGCCCCAGATCTGAATTTTGGAGGTCCATGGTGCTA 2523
2524 GGCAGCCATCCAAAGCTAGAGCCATGGCTCCTTTGCCCTTGCAGCATATAACAAGGAGCTTGCATTCAGAAAGGTTCCCTGGCCTTG 2610

FIG. 1B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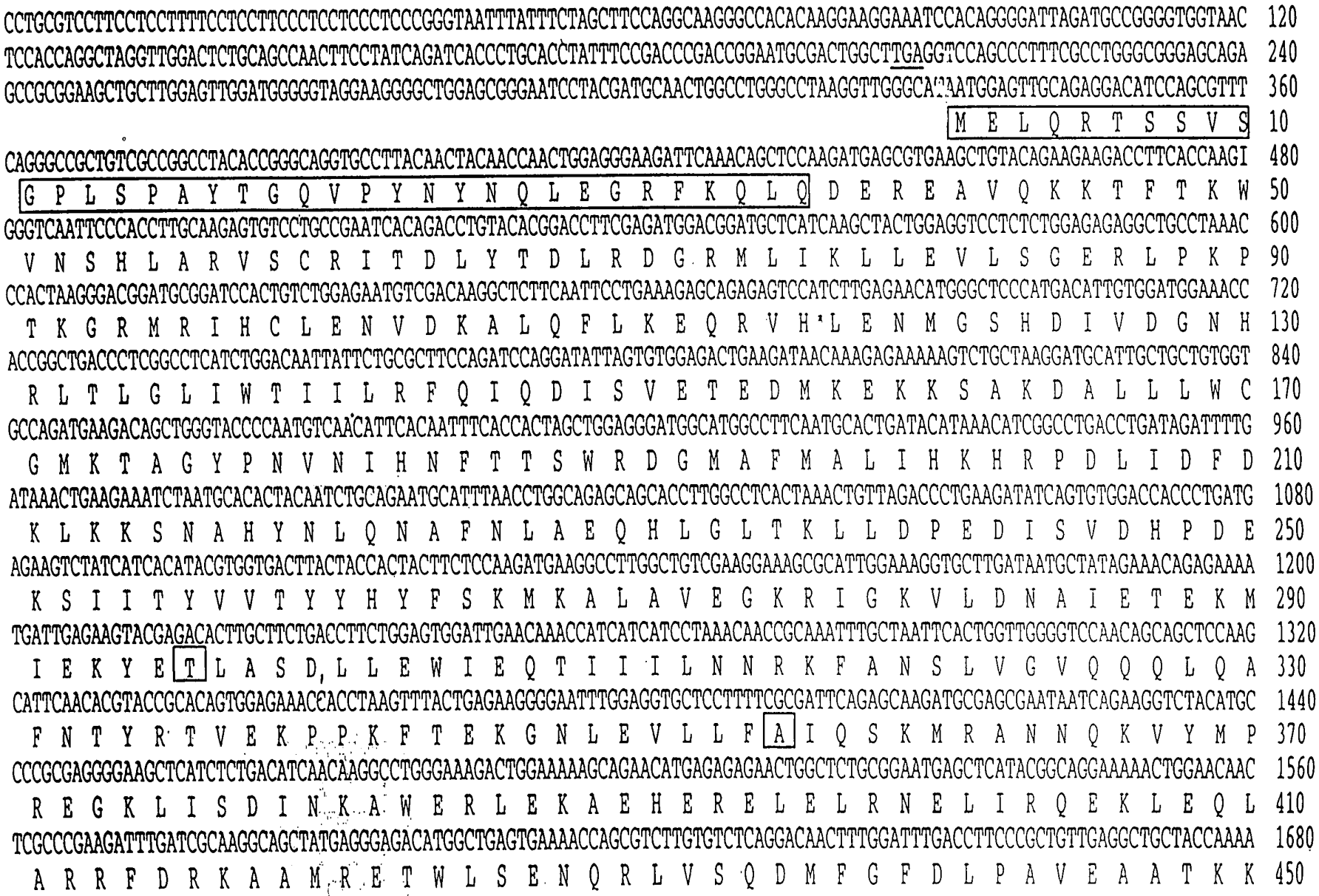
2698 CCCAAACCTGAGTGTGGTGGGTTTACACACAAGTCTCTGGTGGGAGAAGTAAGTCAGGAGTTTTGAGAAACCTCGGCTCTTTGTGAT 2784
2785 AGTCATTTTCCTCGGTGTGAGGCAGGATGAGGAGTCTTTGCAACTCCAGGCTTTGAGATGTTTCTTACAAGAACCCCCAAAGAGTCT 2871
2872 ATGGTTGAAGGGACCTAGCCTAAGAGCCAGGTCTGTGTTAGAGAAGGGGGGGTGGTGTCAGGAAGTAACAACGGCGAGAAGGTCCCA 2958
2959 CAGATCTTCCTGGGGATGGTGTACATGTGTGTCGATGGGTGAGGAGATGAGGAGGAAGGAAGGTTTCTGTGGTAAGACAGCCATCCT 3045
3046 CAACTACAAACTTCAGGTCTGACAGAATTGGCCCTTAACCATCACCAGTGCCCATCAGCCCTGGCCTCCGCTGGAAGAACATTTCAG 3132
3133 TGATTTTCAGTGTTGGGGGATGGAACTGCAGACAGTTCCGGTAGTCCTGAGACATCACTCAGACATCAGGTTGCAGGCATGGCATTT 3219
3220 TACGTTTGTAGTATTTCCTGTGTTTAAGTGGTGGCATTAGTTCCCCGGTAGCTAGCTCTTGGTAACAGCTGCACTGTAAACCGTGTG 3306
3307 TGTAGCCCAGTAGTGGAAGATAGCTATGGTATTTGAAGCCAGTGTGTTAGCTGTACGTCACCCAGCCAGGTGCTTTCCCTCTCGGAG 3393
3394 CCTCGGTTCCTCTGTAAGTTAGCAGAAGTATATTTACTATAAATGGTCACTTTTGGAAGTGAGATAGTTGGTGTAAAGTAAGCAAAC 3480
3481 TAAATATGTAATAGATGCGAGCAGAGACGTTACAGAAGTTTAAGAACCAGTTATTAGTAGCAGTAGCTATGGTAGATGCTTGTCCTC 3567
3568 CTAGACCCTGGGATGGGGCTTCTGAGGGAGGTCTAATGTGGCTGTTAGAAAAAGAAAGGGCTCTGAGGGAGGAGGGCCGAGAGAGGG 3654
3655 TCCCGTTCTCCTTAATTGCATTACCCAGGATAAAAGAGGAAACTCTTGTTTTGCCGTACATCGTTTACCCTTCTGTTCACCTGTCAT 3741
3742 GTAAGATGAGTTTCTATGTTTGGAATTTTGTACATTGGATGCCATTGTGAGTTGGGGCCTGGACAGAAAGAAGGGACTTAGAGACAG 3828
3829 AACCATCCAGTCCGTTTTGTCTCACTTGGGTCTTTGAGGATGGGTGGCAGGAATACAGAGGACGTCACCTTTCCAGACCCAGAAAAG 3915
3916 TCACCCAGAGATATGCATGTTTTCATTGGGCCCGACCCTGTGATTTTTGGGGTCCAGAATGAAGGCTGCAGACTAGCCTGTGTGGAC 4002
4003 TTCATACCTTGTAAATGGAGCCCACCACCGAAGCCCTGCCCCACTTCTGCTGGAATGCACCTCACTGCCTTTGTGGGTTCCCAAACC 4089
4090 TGCAGCCTCCTGCAGATTGTGAAAAGGCTTGAGTTGCCAGCTCCCTCCCTACTGTCTGGTCTCTTGTTCAGATGCCTCAGGTATTTG 4176
4177 ACTTTTTGCTGATAACCTTATCCCTACCTGAAGCCAGGCCAGAGAGAAAGACTGCCGCTGTCTGCCCTCAGGGTGCTCACGGAACAC 4263
4264 AACGACAGGCTGACTGCCATTTCCTAAATCTTGAGTTCTCTCACTGTGACACCTGTGAAACTAGTTAGCACCTTCTGATGTCTAAGG 4350
4351 CAGCGGTCTACTTGAGAAGTGCTTTGGTGCTGTTTGGTTGTGTGACTGAAGTCAGGCTGGTGTCTGGCATTTATGTTGCAGAATTTA 4437
4438 GTGAGTTAAAAGCAGCCATAGACTTCCTGCCCAGTGCTAAACAGACTTTTCACTCTGCTGCAGGCTAGTCCTCAGAGGACTCTGCTC 4524
4525 CCAGGTTGTGTTGGTGGTAGGCCTTGGTCTCCTGTTTTCTGTAGCCTTTGTTGCCCCTTGTGAAGAGAAACCTCCATGTTTAGGTGG 4611
4612 TATTTACAGGCAGAGACCTCCATCTTCATCAAAGACGCCTTCCTAGGCTTTCCATATGTAATGCCTGTAGTGAGATGGCTCAGACCT 4698
4699 ATTCTTCGTGAGGTTGTCCAGTTAAGGACCACTGTTGGCATAGTAGCTCCAGTAGAGACTCTAAAGCTATGTTGTTATTGTGGTGAG 4785
4786 GATTGCAGTACCAAGGGGCTGGCTCTGAGAGTAGGTCCGTGGCACCTAAGAATTGTCTGCACATGTCCCTCAAGGATTCCTTTTNGC 4872
4873 TGGCCCACAGTGAGAGAGCAGCAGAAAGCATGCGCCTGGATCTAAGAAAGGTTAATGAAACCATGGTACCTATGGGAGCTTTACAAC 4959
4960 CTGGGCTTCTGTCTCCGGTAGCCATTTCTAAAAGANATTATGAAATTGTGGTAGATTGAAAGATGTTCCTTACTATTCCTTTACATC 5046
5047 CTGAGGATCACGAAAGATTTGCTTTCAGTATTCCTACTATTAATTTTAAAGAACCTATGAAAAGATATCAATGGACAGTTCTTCCAC 5133
5134 AAGGCATGGCTAATAATCCTACCTTATGTCAAANTTGTGGCACAACCATTCACCTGTGAGACACAATGACTATGACTACTCNTCNTG 5220
5221 ATGATGATGANGATGATGAGATGATGATGATGATGATGACACACAMGATAGAGATGATTCTAANGCGGAAANATCCCGACTGCT 5307
5308 TTNCTTAAAATTACCNNCCTNCGAAAAGATTAAACCCGAAAGGTCACCGATCTATATTTNGTTTAANTNATACCGTTTCCCAAAATT 5394
5395 TTNCGGACCTNAANTTTNATCAATTTTGTNTATGNTCCCC 5434

FIG. 2A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GCCGCGGAAGCTGCTTGGAGTTGGATGGGGGTAGGAAGGGGCTGGAGCGGGAATCCTACGATGCAACTGGCCTGGGCCTAAGGTTGGGCATAATGGAGTTGCAGAGGACATCCAGCGTTT 360
M E L Q R T S S V S 10
CAGGGCCGCTGTCGCCGGCCTACACCGGGCAGGTGCCTTACAACTACAACCAACTGGAGGGAAGATTCAAACAGCTCCAAGATGAGCGTGAAGCTGTACAGAAGAAGACCTTCACCAAGI 480
G P L S P A Y T G Q V P Y N Y N Q L E G R F K Q L Q D E R E A V Q K K T F T K W 50
GGGTCAATTCCCACCTTGCAAGAGTGTCCTGCCGAATCACAGACCTGTACACGGACCTTCGAGATGGACGGATGCTCATCAAGCTACTGGAGGTCCTCTCTGGAGAGAGGCTGCCTAAAC 600
V N S H L A R V S C R I T D L Y T D L R D G R M L I K L L E V L S G E R L P K P 90
CCACTAAGGGACGGATGCGGATCCACTGTCTGGAGAATGTCGACAAGGCTCTTCAATTCCTGAAAGAGCAGAGAGTCCATCTTGAGAACATGGGCTCCCATGACATTGTGGATGGAAACC 720
T K G R M R I H C L E N V D K A L Q F L K E Q R V H L E N M G S H D I V D G N H 130
ACCGGCTGACCCTCGGCCTCATCTGGACAATTATTCTGCGCTTCCAGATCCAGGATATTAGTGTGGAGACTGAAGATAACAAAGAGAAAAAGTCTGCTAAGGATGCATTGCTGCTGTGGT 840
R L T L G L I W T I I L R F Q I Q D I S V E T E D M K E K K S A K D A L L L W C 170
GCCAGATGAAGACAGCTGGGTACCCCAATGTCAACATTCACAATTTCACCACTAGCTGGAGGGATGGCATGGCCTTCAATGCACTGATACATAAACATCGGCCTGACCTGATAGATTTTG 960
G M K T A G Y P N V N I H N F T T S W R D G M A F M A L I H K H R P D L I D F D 210
ATAAACTGAAGAAATCTAATGCACACTACAATCTGCAGAATGCATTTAACCTGGCAGAGCAGCACCTTGGCCTCACTAAACTGTTAGACCCTGAAGATATCAGTGTGGACCACCCTGATG 1080
K L K K S N A H Y N L Q N A F N L A E Q H L G L T K L L D P E D I S V D H P D E 250
AGAAGTCTATCATCACATACGTGGTGACTTACTACCACTACTTCTCCAAGATGAAGGCCTTGGCTGTCGAAGGAAAGCGCATTGGAAAGGTGCTTGATAATGCTATAGAAACAGAGAAAA 1200
K S I I T Y V V T Y Y H Y F S K M K A L A V E G K R I G K V L D N A I E T E K M 290
TGATTGAGAAGTACGAGACACTTGCTTCTGACCTTCTGGAGTGGATTGAACAAACCATCATCATCCTAAACAACCGCAAATTTGCTAATTCACTGGTTGGGGTCCAACAGCAGCTCCAAG 1320
I E K Y E T L A S D L L E W I E Q T I I I L N N R K F A N S L V G V Q Q Q L Q A 330
CATTCAACACGTACCGCACAGTGGAGAAACCACCTAAGTTTACTGAGAAGGGGAATTTGGAGGTGCTCCTTTTCGCGATTCAGAGCAAGATGCGAGCGAATAATCAGAAGGTCTACATGC 1440
F N T Y R T V E K P P K F T E K G N L E V L L F A I Q S K M R A N N Q K V Y M P 370
CCCGCGAGGGGAAGCTCATCTCTGACATCAACAAGGCCTGGGAAAGACTGGAAAAAGCAGAACATGAGAGAGAACTGGCTCTGCGGAATGAGCTCATACGGCAGGAAAAACTGGAACAAC 1560
R E G K L I S D I N K A W E R L E K A E H E R E L E L R N E L I R Q E K L E Q L 410
TCGCCCGAAGATTTGATCGCAAGGCAGCTATGAGGGAGACATGGCTGAGTGAAAACCAGCGTCTTGTGTCTCAGGACAACTTTGGATTTGACCTTCCCGCTGTTGAGGCTGCTACCAAAA 1680
A R R F D R K A A M R E T W L S E N Q R L V S Q D M F G F D L P A V E A A T K K 450

FIG. 2B

```
AACACGAGGCCATTGAGACAGACATCGCTGCATATGAAGAACGAGTTCAGGCCGTGGTGGCTGTGGCCAGGGAACTTGAAGCCGAGAACTACCATGACATCAAGCGCATCACAGCGAGGA 1800
 H  E  A  I  E  T  D  I  A  A  Y  E  E  R  V  Q  A  V  V  A  V  A  R  E  L  E  A  E  N  Y  H  D  I  K  R  I  T  A  R  K 490
AGGACAATGTCATCCGGCTCTGGGAATACTTGCTGGAACTGCTCAGGGCCAGGAGGCAGCGTCTTGAGATGAACCTGGGATTGCAAAAGATATTCCAGGAAATGCTTTATATTATGGACT 1920
 D  N  V  I  R  L  W  E  Y  L  L  E  L  L  R  A  R  R  Q  R  L  E  M  N  L  G  L  Q  K  I  F  Q  E  M  L  Y  I  M  D  W 530
GGATGGATGAAATGAAGGTGCTATTGCTGTCTCAAGACTATGGCAAACACTTACTTGGTGTTGAAGACCTGTTACAGAAGCATGCCCTGGTTGAAGCAGACATTGCAATCCAAGCAGAGC 2040
 M  D  E  M  K  V  L [L] L  S  Q  D  Y  G  K  H  L  L  G  V  E  D  L  L  Q  K  H [A] L  V  E  A  D  I [A] I  Q  A  E  R 570
GTGTAAGAGGTGTGAATGCCTCTGCCCAGAAGTTTGCAACAGATGGGGAAGGCTACAAGCCATGTGACCCCCAGGTAATTCGAGACCGTGTTGCCCACATGGAGTTCTGCTATCAAGAGC 2160
 U  R  G  V  N  A  S  A  Q  K  F  A  T  D  G  E  G  Y  K  P  C  D  P  Q  V  I  R  D  R  V  A  H  M  E  F  C  Y  Q  E  L 610
TTTGTCAGCTGGCTGCCGAGCGTAGGGCTCGCCTGGAAGAGTCCCGTCGCCTCTGGAAGTTCTTCTGGGAGATGGCAGAAGAGGAAGGCTGGATACGAGAGAAGGAAAAGATCCTGTCCT 2280
 C  Q  L  A  A  E  R  R  A  R  L  E  E  S  R  R  L  W  K  F  F  W  E  M  A  E  E  E  G  W  I  R  E  K  E  K  I  L  S  S 650
CTGATGATTACGGGAAAGACTTGACCAGTGTCATGCGCCTGCTGAGCAAGCACCGGGCATTTGAGGATGAGATGAGTGGCCGTAGTGGCCATTTTGAGCAGGCCATTAAAGAAGGTGAAG 2400
 D  D  Y  G  K  D  L  T  S  V  M  R  L  L  S  K  H  R  A  F  E  D  E  M  S  G  R  S  G  H  F  E  Q  A  I  K  E  G  E  D 690
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 M  I  A  E  E  H  R  G  S  E  K  I  R  E  R  I  I  Y  I  R  E  Q  W  A  N  L  E  Q  L  S  A  I  R [K] K  R  L  E  E  E 730
CCTCATTACTGCACCAGTTCCAGGCTGATGCTGATGATATTGATGCTTGGATGTTAGATATACTCAAGATTGTCTCCAGCAATGATGTGGGCCATGATGAGTACTCCACGCAGTCTCTGG 2640
 S  L  L  H  Q  F  Q  A  D  A  D  D  I  D  A  W  M  L  D  I  L  K  I  V  S  S [N] D  V  G  H  D  E  Y  S  T  Q  S  L  V 770
TCAAGAAGCATAAAGATGTAGCAGAAGAGATCACCAACTGCAGGCCCACTATTGACACACTGCATGAGCAAGCCAGTGCCCTTCCACAAGCACATGCAGAGTCTCCAGATGTGAAGGGCC 2760
 K  K  H  K  D  V  A  E  E  I [T] N [O] R  P  T [I] D  T  L  H  E  Q  A  S  A  L  P  Q [A] H  A  E  S  P  D  V [K] G  R  810
GGCTGGCAGGAATTGAGGAGCGCTGCAAGGAGATGGCAGAGTTAACACGGCTAAGGAAGCAGGCTCTGCAGGACACCCTGGCCCTGTACAAGATGTTCAGTGAGGCTGATGCCTGTGAGC 2880
 L [A] G  I  E  E  R [C] K  E [M] A  E  L  T  R  L  R  K  Q  A  L [Q] D  T  L  A  L  Y  K  M  F  S  E  A  D  A  C  E  L 850
TCTGGATTGACGAGAAGGAGCAGTGGCTCAACAACATGCAGATCCCAGAGAAGCTGGAGGACCTGGAAGTCATCCAGCACAGATTTGAGAGCCTAGAACCAGAAATGAACAACCAGGCTT 3000
 W  I  D  E  K  E  Q  W  L  N  N  M  Q  I  P  E  K  L  E  D  L  E  V  I  Q  H  R  F  E  S  L  E  P  E  M  N  N  Q  A  S 890
CCCGGGTTGCTGTGGTGAACCAGATTGCACGGCAGCTGATGCACAATGGCCACCCCAGTGAAAAGGAAATCAGAGCTCAGCAAGACAAACTCAACACGAGGTGGAGTCAGTTCAGAGAAC 3120
 R  V  A  V  V  N  Q  I  A  R  Q  L  M  H [N] G  H  P  S  E  K  E  I [R] A  Q  Q  D  K  L  N  T  R  W  S  Q  F  R  E  L 930
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 V  D  R  J  J  D  A  K  K  S  A  K  S  U  Q  N  Y  H  L  E  C  N  E  T  K  S  C  I  R  E  K  T  K  V  I  E  S  T  Q  D 970
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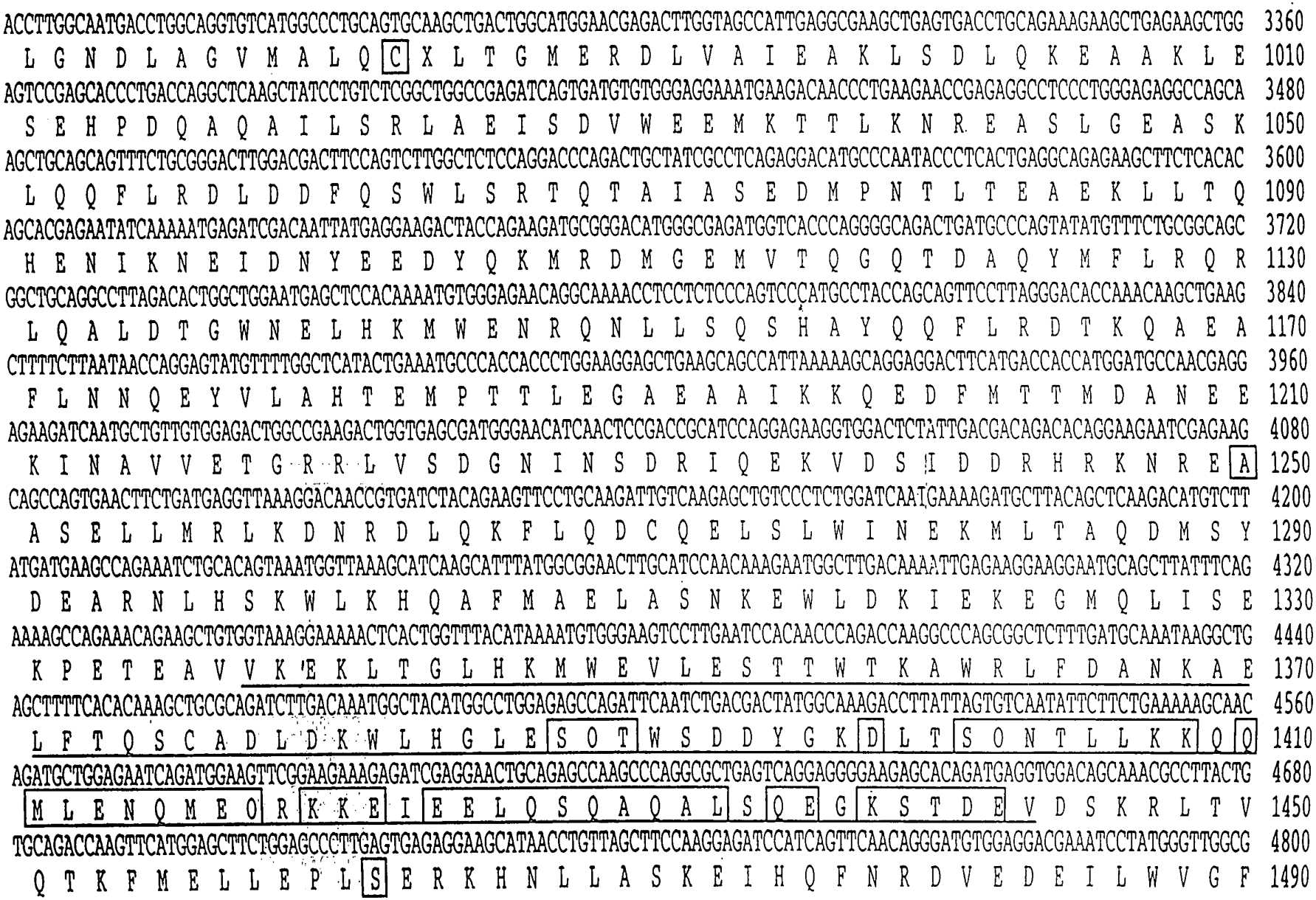
FIG. 2C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AGTCCGAGCACCCTGACCAGGCTCAAGCTATCCTGTCTCGGCTGGCCGAGATCAGTGATGTGTGGGAGGAAATGAAGACAACCCTGAAGAACCGAGAGGCCTCCCTGGGAGAGGCCAGCA 3480
S E H P D Q A Q A I L S R L A E I S D V W E E M K T T L K N R E A S L G E A S K 1050
AGCTGCAGCAGTTTCTGCGGGACTTGGACGACTTCCAGTCTTGGCTCTCCAGGACCCAGACTGCTATCGCCTCAGAGGACATGCCCAATACCCTCACTGAGGCAGAGAAGCTTCTCACAC 3600
L Q Q F L R D L D D F Q S W L S R T Q T A I A S E D M P N T L T E A E K L L T Q 1090
AGCACGAGAATATCAAAAATGAGATCGACAATTATGAGGAAGACTACCAGAAGATGCGGGACATGGGCGAGATGGTCACCCAGGGGCAGACTGATGCCCAGTATATGTTTCTGCGGCAGC 3720
H E N I K N E I D N Y E E D Y Q K M R D M G E M V T Q G Q T D A Q Y M F L R Q R 1130
GGCTGCAGGCCTTAGACACTGGCTGGAATGAGCTCCACAAAATGTGGGAGAACAGGCAAAACCTCCTCTCCCAGTCCCATGCCTACCAGCAGTTCCTTAGGGACACCAAACAAGCTGAAG 3840
L Q A L D T G W N E L H K M W E N R Q N L L S Q S H A Y Q Q F L R D T K Q A E A 1170
CTTTTCTTAATAACCAGGAGTATGTTTTGGCTCATACTGAAATGCCCACCACCCTGGAAGGAGCTGAAGCAGCCATTAAAAAGCAGGAGGACTTCATGACCACCATGGATGCCAACGAGG 3960
F L N N Q E Y V L A H T E M P T T L E G A E A A I K K Q E D F M T T M D A N E E 1210
AGAAGATCAATGCTGTTGTGGAGACTGGCCGAAGACTGGTGAGCGATGGGAACATCAACTCCGACCGCATCCAGGAGAAGGTGGACTCTATTGACGACAGACACAGGAAGAATCGAGAAG 4080
K I N A V V E T G R R L V S D G N I N S D R I Q E K V D S I D D R H R K N R E A 1250
CAGCCAGTGAACTTCTGATGAGGTTAAAGGACAACCGTGATCTACAGAAGTTCCTGCAAGATTGTCAAGAGCTGTCCCTCTGGATCAATGAAAAGATGCTTACAGCTCAAGACATGTCTT 4200
A S E L L M R L K D N R D L Q K F L Q D C Q E L S L W I N E K M L T A Q D M S Y 1290
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D E A R N L H S K W L K H Q A F M A E L A S N K E W L D K I E K E G M Q L I S E 1330
AAAAGCCAGAAACAGAAGCTGTGGTAAAGGAAAAACTCACTGGTTTACATAAAATGTGGGAAGTCCTTGAATCCACAACCCAGACCAAGGCCCAGCGGCTCTTTGATGCAAATAAGGCTG 4440
K P E T E A V V K E K L T G L H K M W E V L E S T T W T K A W R L F D A N K A E 1370
AGCTTTTCACACAAAGCTGCGCAGATCTTGACAAATGGCTACATGGCCTGGAGAGCCAGATTCAATCTGACGACTATGGCAAAGACCTTATTAGTGTCAATATTCTTCTGAAAAAGCAAC 4560
L F T Q S C A D L D K W L H G L E S O T W S D D Y G K D L T S O N T L L K K Q Q 1410
AGATGCTGGAGAATCAGATGGAAGTTCGGAAGAAAGAGATCGAGGAACTGCAGAGCCAAGCCCAGGCGCTGAGTCAGGAGGGGAAGAGCACAGATGAGGTGGACAGCAAACGCCTTACTG 4680
M L E N Q M E O R K K E I E E L Q S Q A Q A L S Q E G K S T D E V D S K R L T V 1450
TGCAGACCAAGTTCATGGAGCTTCTGGAGCCCTTGAGTGAGAGGAAGCATAACCTGTTAGCTTCCAAGGAGATCCATCAGTTCAACAGGGATGTGGAGGACGAAATCCTATGGGTTGGCG 4800
Q T K F M E L L E P L S E R K H N L L A S K E I H Q F N R D V E D E I L W V G F 1490

FIG. 2D

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AGAGGATGCCTTTGGCAACTTCCACAGATCATGGCCATAACCTTCAAACTGTGCAGCTGTTAATAAAGAAAAACCAGACCCTCCAGAAAGAAATCCAGGGACACCAGCCTCGTATTGATG  4920
  R  M  P  L [A] T  S  T  D  H  G  H  N  L  Q  T  V  Q  L  L  I  K  K  N  Q  T  L  Q  K  E  I  Q  G  H  Q  P  R  I  D  D  1530
ACATCTTTGAGAGGAGTCAAAACATCATCACAGATAGCAGCAGCCTCAATGCCGAGGCTATCAGGCAGAGGCTCGCTGACCTGAAGCAGCTGTGGGGGCTCCTCATTGAGGAAACTGAGA  5040
  I  F  E  R  S  Q  N  I [I] T  D  S  S  S  L [N] A  E  A  I  R  Q  R  L  A  D  L  K  Q  L  W  G  L  L  I  E  E  T  E  K  1570
AACGCCATAGACGGCTGGAGGAGGCACACAAGGCGCAGCAGTACTACTTTGATGCAGCTGAAGCCGAGGCATGGATGAGTGAACAGGAGTTGTACATGATGTCTGAGGAAAAGGCCAAGG  5160
  R  H  R  R  L  E  E  A  H [K] A  Q  Q  Y  Y  F  D  A  A  E  A  E  A  W  M  S  E  Q  E  L  Y  M  M  S  E [E  K  A  K  D] 1610
ATGAGCAGAGTGCTGTCTCTATGTTGAAAAAGCACCAGATTTTAGAGCAAGCTGTTGAGGACTATGCAGAGACAGTACACCAGCTCTCCAAGACTAGCCGGGCGCTGGTGGCTGACAGCC  5280
  E  Q  S  A  V  S  M  L  K  K  H  Q  I  L  E  Q  A  V  E  D  Y  A  E  T  V  H  Q  L  S  K  T  S  R  A  L  V  A  D  S  H  1650
ATCCCGAAAGTGAGCGTATTAGCATGCGGCAGTCAAAGGTCGACAAGCTGTATGCTGGCCTGAAGGACCTTGCTGAGGAGAGGAGAGGAAAACTTGATGAGAGGCACAGGCTGTTCCAGC  5400
  P  E  S  E  R  I  S  M  R  Q  S  K  V  D  K  L  Y  A  G  L  K  D  L  A  E  E  R  R  G  K  L  D  E  R  H  R  L  F  Q  L  1690
TCAACAGAGAGGTGGATGACCTGGAACAGTGGATCGCTGAGAGGGAAGTGGTCGCAGGCTCCCATGAGTTGGGACAGGACTATGAGCATGTCACGATGTTACAAGAACGGTTCCGAGAAT  5520
  N  R  E  V  D  D  L  E  Q  W  I  A  E  R  E  V  V  A  G  S  H  E  L  G  Q  D  Y  E  H  V  T  M  L  Q  E  R  F  R  E  F  1730
TTGCTCGAGACACAGGAAACATTGGGCAGGAGCGTGTGGATACAGTTAATAACATGGCAGATGAACTCATCAACTCTGGACATTCAGATGCTGCCACCATTGCTGAGTGGAAAGATGGTC  5640
  A  R  D  T  G  N  I  G  Q  E  R  V  D  T  V  N [N  M] A  D  E  L  I  N  S  G  H  S  D  A  A  T  I  A  E  W  K  D  G  L  1770
TCAATGAAGCCTGGGCTGACCTCCTGGAGCTCATTGACACAAGAACACAGATTCTTGCTGCCTCATATGAACTTCATAAGTTTTACCATGATGCCAAGGAGATCTTTGGCCGAATCCAGG  5760
  N  E  A  W  A  D  L  L  E  L  I  D  T  R  T  Q  I  L  A  A  S  Y  E  L  H  K  F  Y  H  D  A  K  E  I  F  G  R  I  Q  D  1810
ACAAACACAAGAAACTCCCTGAGGAGCTTGGAAGAGATCAAAACACTGTGGAAACTTTACAGAGAATGCACACCACCTTTGAGCACGACATCCAAGCTCTGGGCACTCAGGTGAGGCAGC  5880
  K  H  K  K  L  P  E  E  L  G  R  D  Q  N  T  V  E  T  L  Q  R  M  H  T  T  F  E  H  D  I  Q  A  L  G  T  Q  V  R  Q  L  1850
TGCAGGAGGATGCAGCTCGCCTCCAGGCAGCCTATGCAGGGGACAAGGCTGATGACATCCAGAAGCGTGAGAATGAGGTCCTGGAAGCCTGGAAGTCCCTGCTGGATGCTTGTGAGGGTC  6000
  Q  E  D  A  A  R  L  Q  A  A  Y  A  G  D  K  A  D  D  I  Q  K  R  E  N  E  V  L  E  A  W  K  S  L  L  D  A  C  E [G] B  1890
GCAGGGTGCGGCTGGTAGACACAGGAGACAAGTTCCGCTTCTTCAGCATGGTGCGTGACCTCATGCTCTGGATGGAAGATGTCATCCGGCAGATCGAGGCCCAGGAGAAACCACGGGATG  6120
  R  V  R  L  V  D  T  G  D  K  F  R  F  F  S  M  V  R  D  L  M  L  W  M  E  D  V  I  R  Q  I  E  A  Q  E  K  P  R  D  V  1930
TGTCATCTGTTGAACTGTTAATGAATAATCATCAAGGTATCAAAGCTGAAATTGATGCTCGTAATGACAGCTTTACAGCCTGCATTGAGCTTGGGAAATCCCTGCTGGCACGGAAACACT  6240
  S  S  V  E  L  L  M  N  N  H  Q  G  I  K  A  E  I  D  A  R  N  D  S  F  T [A] C  I  E  L  G  K  S  L  L  A  R  K  H  Y  1970
ATGCTTCTGAGGAGATCAAGGAAAAGTTACTGCAGCTGACAGAGAAAAGAAAAGAAATGATTGACAAGTGGGAAGACCGGTGGGAGTGGTTAAGACTGATTTTGGAGGTCCATCAGTTCT  6360
  A  S  E  E  I  K  E  K  L  L  Q  L  T  E  K  R  K  E  M  I  D  K  W  E  D  R  W  E  W  L  R  L  I  L  E  V  H  Q  F  S  2010
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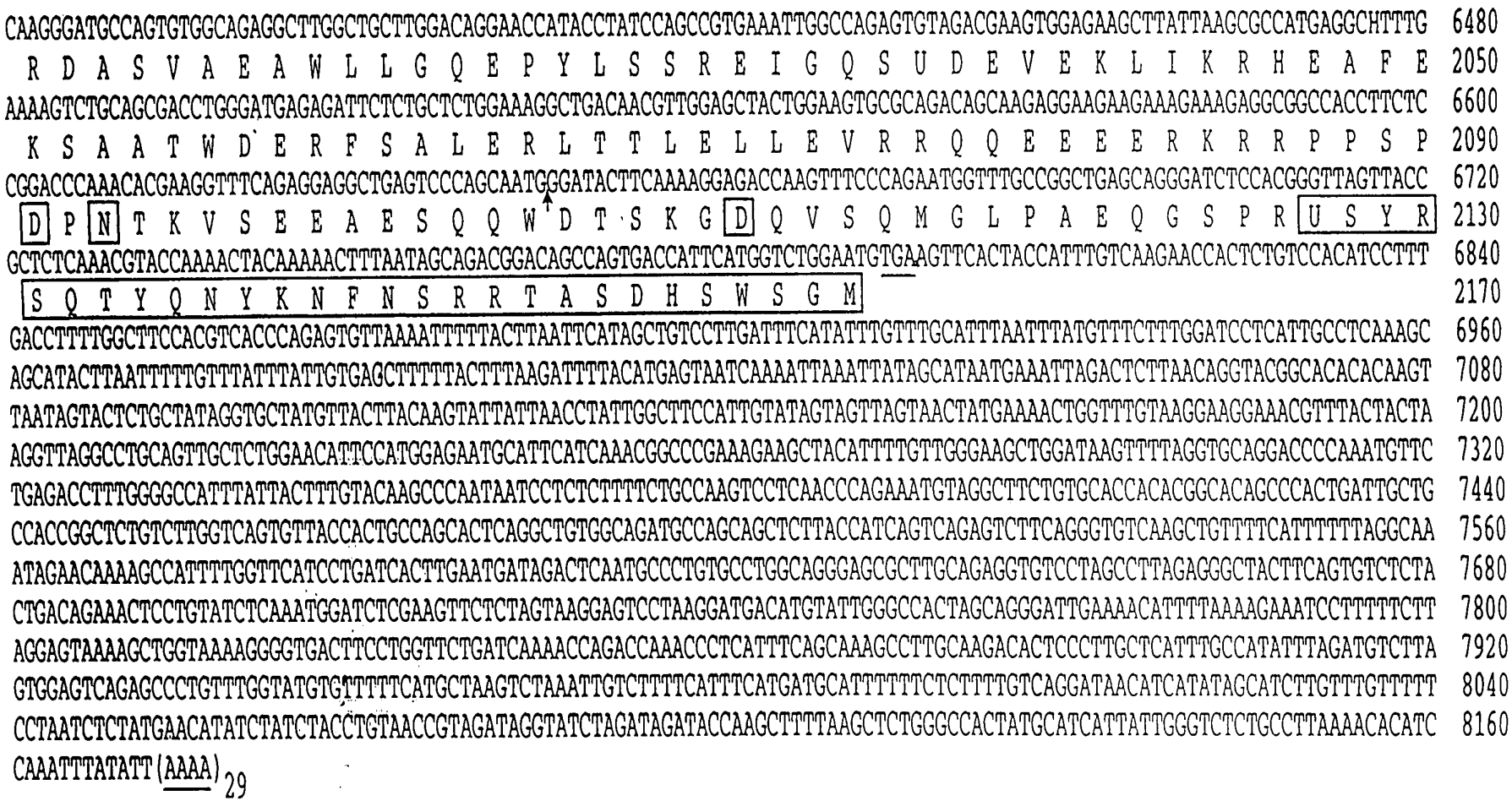
FIG. 2E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R D A S V A E A W L L G Q E P Y L S S R E I G Q S U D E V E K L I K R H E A F E 2050
AAAAGTCTGCAGCGACCTGGGATGAGAGATTCTCTGCTCTGGAAAGGCTGACAACGTTGGAGCTACTGGAAGTGCGCAGACAGCAAGAGGAAGAAGAAAGAAAGAGGCGGCCACCTTCTC 6600
K S A A T W D E R F S A L E R L T T L E L L E V R R Q Q E E E E R K R R P P S P 2090
CGGACCCAAACACGAAGGTTTCAGAGGAGGCTGAGTCCCAGCAATGGGATACTTCAAAAGGAGACCAAGTTTCCCAGAATGGTTTGCCGGCTGAGCAGGGATCTCCACGGGTTAGTTACC 6720
D P N T K V S E E A E S Q Q W D T S K G D Q V S Q M G L P A E Q G S P R U S Y R 2130
GCTCTCAAACGTACCAAAACTACAAAAACTTTAATAGCAGACGGACAGCCAGTGACCATTCATGGTCTGGAATGTGAAGTTCACTACCATTTGTCAAGAACCACTCTGTCCACATCCTTT 6840
S Q T Y Q N Y K N F N S R R T A S D H S W S G M 2170
GACCTTTTGGCTTCCACGTCACCCAGAGTGTTAAAATTTTTACTTAATTCATAGCTGTCCTTGATTTCATATTTGTTTGCATTTAATTTATGTTTCTTTGGATCCTCATTGCCTCAAAGC 6960
AGCATACTTAATTTTTGTTTATTTATTGTGAGCTTTTTACTTTAAGATTTTACATGAGTAATCAAAATTAAATTATAGCATAATGAAATTAGACTCTTAACAGGTACGGCACACACAAGT 7080
TAATAGTACTCTGCTATAGGTGCTATGTTACTTACAAGTATTATTAACCTATTGGCTTCCATTGTATAGTAGTTAGTAACTATGAAAACTGGTTTGTAAGGAAGGAAACGTTTACTACTA 7200
AGGTTAGGCCTGCAGTTGCTCTGGAACATTCCATGGAGAATGCATTCATCAAACGGCCCGAAAGAAGCTACATTTTGTTGGGAAGCTGGATAAGTTTTAGGTGCAGGACCCCAAATGTTC 7320
TGAGACCTTTGGGGCCATTTATTACTTTGTACAAGCCCAATAATCCTCTCTTTTCTGCCAAGTCCTCAACCCAGAAATGTAGGCTTCTGTGCACCACACGGCACAGCCCACTGATTGCTG 7440
CCACCGGCTCTGTCTTGGTCAGTGTTACCACTGCCAGCACTCAGGCTGTGGCAGATGCCAGCAGCTCTTACCATCAGTCAGAGTCTTCAGGGTGTCAAGCTGTTTTCATTTTTTAGGCAA 7560
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GTGGAGTCAGAGCCCTGTTTGGTATGTGTTTTTCATGCTAAGTCTAAATTGTCTTTTCATTTCATGATGCATTTTTTCTCTTTTGTCAGGATAACATCATATAGCATCTTGTTTGTTTTT 8040
CCTAATCTCTATGAACATATCTATCTACCTGTAACCGTAGATAGGTATCTAGATAGATACCAAGCTTTTAAGCTCTGGGCCACTATGCATCATTATTGGGTCTCTGCCTTAAAACACATC 8160
CAAATTTATATT(AAAA)29

FIG. 2F

```
   1 CCTGCGTCCT TCCTCCTTTT CCTCCTTCCC TCCTCCCTCC CGGGTAATTT
  51 ATTTCTAGCT TCCAGGCAAG GGCCACACAA GGAAGGAAAT CCACAGGGGA
 101 TTAGATGCCG GGGTGGTAAC TCCACCAGGA TAGGTTGGAC TCTGCAGCCA
 151 ACTTCCTATC AGATCACCCT GCACCTATTT CCGACCCGAC CGGAATGCGA
 201 CTGGCTTGAG GTCCAGCCCT TTCGCCTGGG CGGGAGCAGA GCCGCGGAAG
 251 CTFCTTGGAG TTGGATGGGG GTAGGAAGGG GCTGGAGCGG GAATCCTACG
 301 ATGCAACTGG CCTGGGCCTA AGGTTGGGCA TAATGGAGTT GCAGAGGACA
 351 TCCAGCGTTT CAGGGCCGCT GTCGCCGGCC TACACCGGGC AGGTGCCTTA
 401 CAACTACAAC CAACTGGAGG GAAGATTCAA ACAGCTCCAA GATGAGCGTG
 451 AAGCTGTACA GAAGAAGACC TTCACCAAGT GGGTCAATTC CCACCTTGCA
 501 AGAGTGTCCT GCCGAATCAC AGACCTGTAC ACGGACCTTC GAGATGGACG
 551 GATGCTCATC AAGCTACTGG AGGTCCTCTC TGGAGAGAGG CTGCCTAAAC
 601 CCACTAAGGG ACGGATGCGG ATCCACTGTC TGGAGAATGT CGACAAGGCT
 651 CTTCAATTCC TGAAAGAGCA GAGAGTCCAT CTTGAGAACA TGGGCTCCCA
 701 TGACATTGTG GATGGAAACC ACCGGCTGAC CCTCGGCCTC ATCTGGACAA
 751 TTATTCTGCG CTTCCAGATC CAGGATATTA GTGTGGAGAC TGAAGATAAC
 801 AAAGAGAAAA AGTCTGCTAA GGATGCATTG CTGCTGTGGT GCCAGATGAA
 851 GACAGCTGGG TACCCCAATG TCAACATTCA CAATTTCACC ACTAGCTGGA
 901 GGGATGGCAT GGCCTTCAAT GCACTGATAC ATAAACATCG GCCTGACCTG
 951 ATAGATTTTG ATAAACTGAA GAAATCTAAT GCACACTACA ATCTGCAGAA
1001 TGCATTTAAC CTGGCAGAGC AGCACCTTGG CCTCACTAAA CTGTTAGACC
1051 CTGAAGATAT CAGTGTGGAC CACCCTGATG AGAAGTCTAT CATCACATAC
1101 GTGGTGACTT ACTACCACTA CTTCTCCAAG ATGAAGGCCT TGGCTGTCGA
1151 AGGAAAGCGC ATTGGAAAGG TGCTTGATAA TGCTATAGAA ACAGAGAAAA
1201 TGATTGAGAA GTACGAGACA CTTGCTTCTG ACCTTCTGGA GTGGATTGAA
1251 CAAACCATCA TCATCCTAAA CAACCGCAAA TTTGCTAATT CACTGGTTGG
1301 GGTCCAACAG CAGCTCCAAG CATTCAACAC GTACCGCACA GTGGAGAAAC
1351 CACCTAAGTT TACTGAGAAG GGGAATTTGG AGGTGCTCCT TTTCGCGATT
1401 CAGAGCAAGA TGCGAGCGAA TAATCAGAAG GTCTACATGC CCCGCGAGGG
1451 GAAGCTCATC TCTGACATCA ACAAGGCCTG GGAAAGACTG GAAAAAGCAG
1501 AACATGAGAG AGAACTGGCT CTGCGGAATG AGCTCATACG GCAGGAAAAA
1551 CTGGAACAAG TCGCCCGAAG ATTTGATCGC AAGGCAGCTA TGAGGGAGAC
1601 ATGGCTGAGT GAAAACCAGC GTCTTGTGTC TCAGGACAAC TTTGGATTTG
1651 ACCTTCCCGC TGTTGAGGCT GCTACCAAAA AACACGAGGC CATTGAGACA
1701 GACATCGCTG CATATGAAGA ACGAGTTCAG GCCGTGGTGG CTGTGGCCAG
1751 GGAACTTGAA GCCGAGAACT ACCATGACAT CAAGCGCATC ACAGCGAGGA
1801 AGGACAATGT CATCCGGCTC TGGGAATACT TGCTGGAACT GCTCAGGGCC
1851 AGGAGGCAGC GTCTTGAGAT GAACCTGGGA TTGCAAAAGA TATTCCAGGA
1901 AATGCTTTAT ATTATGGACT GGATGGATGA AATGAAGGTG CTATTGCTGT
1951 CTCAAGACTA TGGCAAACAC TTACTTGGTG TTGAAGACCT GTTACAGAAG
```

FIG. 2G

2001 CATGCCCTGG TTGAAGCAGA CATTGCAATC CAAGCAGAGC GTGTAAGAGG
2051 TGTGAATGCC TCTGCCCAGA AGTTTGCAAC AGATGGGGAA GGCTACAAGC
2101 CATGTGACCC CCAGGTAATT CGAGACCGTG TTGCCCACAT GGAGTTCTGC
2151 TATCAAGAGC TTTGTCAGCT GGCTGCCGAG CGTAGGGCTC GCCTGGAAGA
2201 GTCCCGTCGC CTCTGGAAGT TCTTCTGGGA GATGCCAGAA GAGGAAGGCT
2251 GGATACCAGA GAAGGAAAAG ATCCTGTCCT CTGATGATTA CGGGAAAGAC
2301 TTGACCAGTG TCATGCGCCT GCTGAGCAAG CACCGGGCAT TTGAGGATGA
2351 GATGAGTGGC CGTAGTGGCC ATTTTGAGCA GGCCATTAAA GAAGGTGAAG
2401 ACATGATTGC AGAGGAACAC TTTGGATCGG AAAAGATCCG TGAGAGAATC
2451 ATTTATATCC GGGAGCAGTG GGCCAACCTG GAACAGCTCT CAGCCATTAG
2501 GAAGAAGCGC CTAGAGGAAG CCTCATTACT GCACCAGTTC CAGGCTGATG
2551 CTGATGATAT TGATGCTTGG ATGTTAGATA TACTCAAGAT TGTCTCCAGC
2601 AATGATGTGG GCCATGATGA GTACTCCACG CAGTCTCTGG TCAAGAAGCA
2651 TAAAGATGTA GCAGAAGAGA TCACCAACTG CAGGCCCACT ATTGACACAC
2701 TGCATGAGCA AGCCAGTGCC CTTCCACAAG CACATGCAGA GTCTCCAGAT
2751 GTGAAGGGCC GGCTGGCAGG AATTGAGGAG CGCTGCAAGG AGATGGCAGA
2801 GTTAACACGG CTAAGGAAGC AGGCTCTGCA GGACACCCTG GCCCTGTACA
2851 AGATGTTCAG TGAGGCTGAT GCCTGTGAGC TCTGGATTGA CGAGAAGGAG
2901 CAGTGGCTCA ACAACATGCA GATCCCAGAG AAGCTGGAGG ACCTGGAAGT
2951 CATCCAGCAC AGATTTGAGA GCCTAGAACC AGAAATGAAC AACCAGGCTT
3001 CCCGGGTTGC TGTGGTGAAC CAGATTGCAC GGCAGCTGAT GCACAATGGC
3051 CACCCCAGTG AAAAGGAAAT CAGAGCTCAG CAAGACAAAC TCAACACGAG
3101 GTGGAGTCAG TTCAGAGAAC TGGTGGACAG GAAAAAGGAT GCTCTTCTGT
3151 CTGCCCTGAG CATCCAGAAC TACCACCTCG AGTGCAATGA AACCAAATCC
3201 TGCATCCGGG AGAAGACCAA GGTCATCGAG TCTACCCAAG ACCTTGGCAA
3251 TGACCTGGCA GGTGTCATGG CCCTGCAGTG CAAGCTGACT GGCATGGAAC
3301 GAGACTTGGT AGCCATTGAG GCGAAGCTGA GTGACCTGCA GAAAGAAGCT
3351 GAGAAGCTGG AGTCCGAGCA CCCTGACCAG GCTCAAGCTA TCCTGTCTCG
3401 GCTGGCCGAG ATCAGTGATG TGTGGGAGGA AATGAAGACA ACCCTGAAGA
3451 ACCGAGAGGC CTTCCTGGGA GAGGCCAGCA AGCTGCAGCA GTTTCTGCGG
3501 GACTTGGACG ACTTCCAGTC TTGGCTCTCC AGGACCCAGA CTGCTATCGC
3551 CTCAGAGGAC ATGCCCAATA CCCTCACTGA GGCAGAGAAG CTTCTCACAC
3601 AGCACGAGAA TATCAAAAAT GAGATCGACA ATTATGAGGA AGACTACCAG
3651 AAGATGCGGG ACATGGGCGA GATGGTCACC CAGGGGCAGA CTGATGCCCA
3701 GTATATGTTT CTGCGGCAGC GGCTGCAGGC CTTAGACACT GGCTGGAATG
3751 AGCTCCACAA AATGTGGGAG AACAGGCAAA ACCTCCTCTC CCAGTCCCAT
3801 GCCTACCAGC AGTTCCTTAG GGACACCAAA CAAGCTGAAG CTTTTCTTAA
3851 TAACCAGGAG TATGTTTTGG CTCATACTGA AATGCCCACC ACCCTGGAAG
3901 GAGCTGAAGC AGCCATTAAA AAGCAGGAGG ACTTCATGAC CCACATGGAT
3951 GCCAACGAGG AGAAGATCAA TGCTGTTGTG GAGACTGGCC GAAGACTGGT

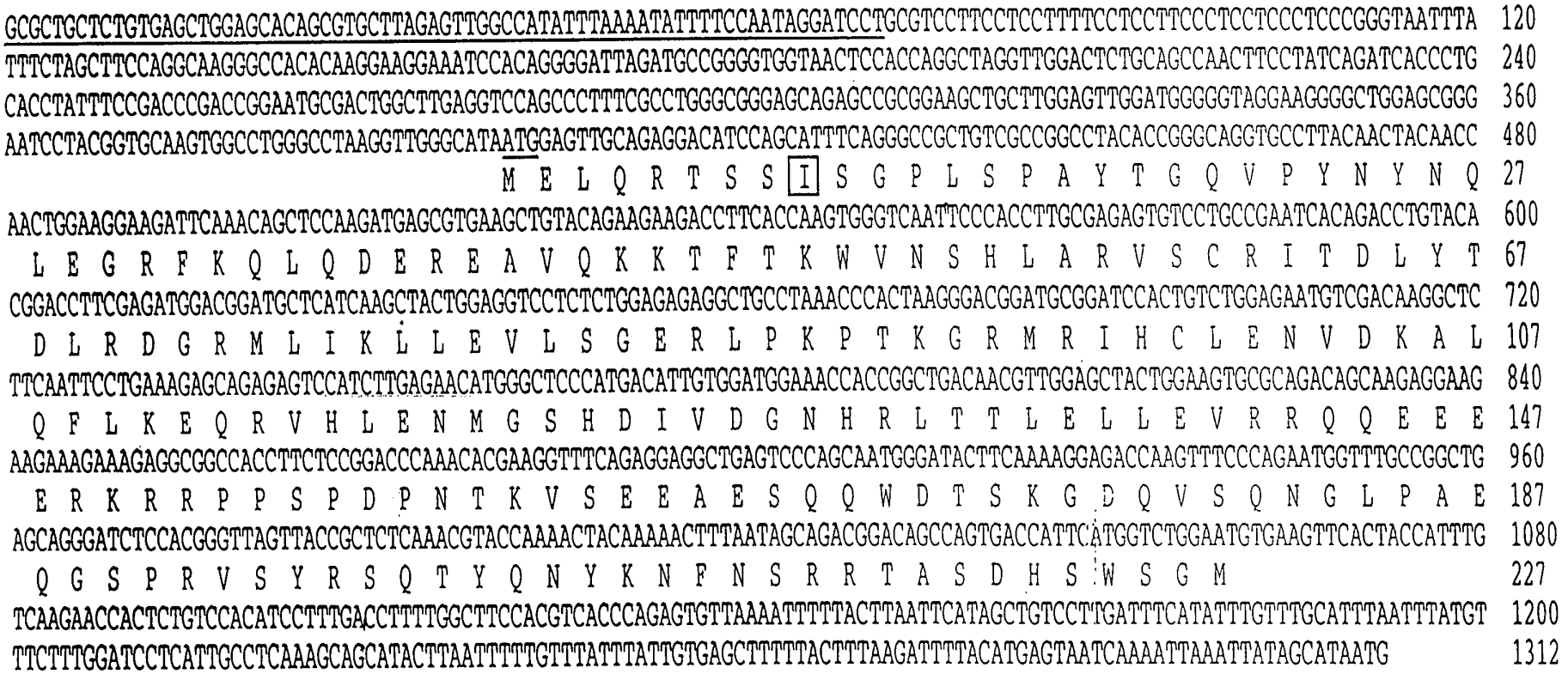
FIG. 2H

4001 GAGCGATGGG AACATCACCT CCGACCGCAT CCAGGAGAAG GTGGACTCTA
4051 TTGACGACAG ACACAGGAAG AATCGAGAAG CAGCCAGTGA ACTTCTGATG
4101 AGGTTAAAGG ACAACCGTGA TCTACAGAAG TTCCTGCAAG ATTGTCAAGA
4151 GCTGTCCCTC TGGATCAATG AAAAGATGCT TACAGCTCAA GACATGTCCT
4201 ATGATGAAGC CAGAAATCTG CACAGTAAAT GGTTAAAGCA TCAAGCATTT
4251 ATGGCGGAAC TTGCATCCAA CAAAGAATGG CTTGACAAAA TTGAGAAGGA
4301 AGGAATGCAG CTTATTTCAG AAAAGCCAGA AACAGAAGCT GTGGTAAAGG
4351 AAAAACTCAC TGGTTTACAT AAAATGTGGG AAGTCCTTGA ATCCACAACC
4401 CAGACCAAGG CCCAGCGGCT CTTTGATGCA AATAAGGCTG AGCTTTTCAC
4451 ACAAAGCTGC GCAGATCTTG ACAAATGGCT ACATGGCCTG GAGAGCCAGA
4501 TTCAATCTGA CGACTATGGC AAAGACCTTA CCAGTGTCAA TATTCTTCTG
4551 AAAAAGCAAC AGATGCTGGA GAATCAGATG GAAGTTCGGA AGAAAGAGAT
4601 CGAGGAACTG CAGAGCCAAG CCCAGGCGCT GAGTCAGGAG GGGAAGAGCA
4651 CAGATGAGGT GGACAGCAAA GCGGTTACTG TGCAGACCAA GTTCATGGAG
4701 CTTCTGGAGC CCTTGAGTGA GAGGAAGCAT AACCTGTTAG CTTCCAAGGA
4751 GATCCATCAG TTCAACAGGG ATGTGGAGGA CGAAATCCTA TGGGTTGGCG
4801 AGAGGATGCC TTTGGCAACT TCCACAGATC ATGGCCATAA CCTTCAAACT
4851 GTGCAGCTGT TAATAAAGAA AAACCAGACC CTCCAGAAAG AAATCCAGGG
4901 ACACCAGCCT CGTATTGATG ACATCTTTGA GAGGAGTCAA AACATCATCA
4951 CAGATAGCAG CAGCCTCAAT GCCGAGGCTA TCAGGCAGAG GCTCGCTGAC
5001 CTGAAGCAGC TGTGGGGGCT CCTCATTGAG GAAACTGAGA AACGCCATAG
5051 ACGGCTGGAG GAGGCACACA AGGCGCAGCA GTACTACTTT GATGCAGCTG
5101 AAGCCGAGGC ATGGATGAGT GAACAGGAGT TGTACATGAT GTCTGAGGAA
5151 AAGGCCAAGG ATGAGCAGAG TGCTGTCTCT ATGTTGAAAA AGCACCAGAT
5201 TTTAGAGCAA GCTGTTGAGG ACTATGCAGA GACAGTACAC CAGCTCTCCA
5251 AGACTAGCCG GGCGCTGGTG GCTGACAGCC ATCCCGAAAG TGAGCGTATT
5301 AGCATGCGGC AGTCAAAGGT CGACAAGCTG TATGCTGGCC TGAAGGACCT
5351 TGCTGAGGAG AGGAGAGGAA AACTTGATGA GAGGCACAGG CTGTTCCAGC
5401 TCAACAGAGA GGTGGATGAC CTGGAACAGT GGATCGCTGA GAGGGAAGTG
5451 GTCGCAGGCT CCCATGAGTT GGGACAGGAC TATGAGCATG TCACGATGTT
5501 ACAAGAACGG TTCCGAGAAT TTGCTCGAGA CACAGGAAAC ATTGGGCAGG
5551 ACGCTGTGGA TACAGTTAAT AACATGGCAG ATGAACTCAG CAACTCTGGA
5601 CATTCAGATG CTGCCACCAT TGCTGAGTGG AAAGATGGTC TCAATGAAGC
5651 CTGGGCTGAC CTCCTGGAGC TCATTGACAC AAGAACACAG ATTCTTGCTG
5701 CCTCATATGA ACTTCATAAG TTTTACCATG ATGCCAAGGA GATCTTTGGC
5751 CGAATCCAGG ACAAACACAA GAAACTCCCT GAGGAGCTTG GAAGAGATCA
5801 AAACACTGTG GAAACTTTAC AGAGAATGCA CACCACCTTT GAGCACGACA
5851 TCCAAGCTCT GGGCACTCAG GTGAGGCAGC TGCAGGAGGA TGCAGCTCGC
5901 CTCCAGGCAG CCTATGCAGG GGACAAGGCT GATGACATCC AGAAGCGTGA
5951 GAATGAGGTC CTGGAAGCCT GGAAGTCCCT GCTGGATGCT TGTGAGGGTC

FIG. 2I

6001 GCAGGGTGCG GCTGGTAGAC ACAGGAGACA AGTTCCGSTT CTTCAGCATG
6051 GTGCGTGACC TCATGCTCTG GATGGAAGAT GTCATCCGGC AGATCGAGGC
6101 CCAGGAGAAA CCACGGGATG TGTCATCTGT TGAACTGTTA ATGAATAATC
6151 ATCAAGGTAT CAAAGCTGAA ATTGATGCTC GTAATGACAG CTTTACAGCC
6201 TGCATTGAGC TTGGGAAATC CCTGCTGGCA CGGAAACACT ATGCTTCTGA
6251 GGAGATCAAG GAAAAGTTAC TGCAGCTGAC AGAGAAAAGA AAAGAAATGA
6301 TTGACAAGTG GGAAGACCGG TGGGAGTGGT TAAGACTGAT TTTGGAGGTC
6351 CATCAGTTCT GAAGGGATGC CAGTGTGGCA GAGGCTTGGC TGCTTGGACA
6401 GGAACCATAC CTATCCAGCC GTGAAATTGG CCAGAGTGTA GACGAAGTGG
6451 AGAAGCTTAT TAAGCGCCAT GAGGCGTTTG AAAAGTCTGC AGCGACCTGG
6501 GATGAGAGAT TCTCTGCTCT GGAAAGGCTG ACAACGTTGG AGCTACTGGA
6551 AGTGCGCAGA CAGCAAGAGG AAGAAGAAAG AAAGAGGCGG CCACCTTCTC
6601 CGGACCCAAA CACGAAGGTT TCAGAGGAGG CTGAGTCCCA GCAATGGGAT
6651 ACTTCAAAAG GAGACCAAGT TTCCCAGAAT GGTTTGCCGG CTGAGCAGGG
6701 ATCTCCACGG GTTAGTTACC GCTCTCAAAC GTACCAAAAC TACAAAAACT
6751 TTAATAGCAG ACGGACAGCC AGTGACCATT CATGGTCTGG AATGTGAAGT
6801 TCACTACCAT TTGTCAAGAA CCACTCTGTC CACATCCTTT GACCTTTTGG
6851 CTTCCACGTC ACCCAGAGTG TTAAAATTTT TACTTAATTC ATAGCTGTCC
6901 TTGATTTCAT ATTTGTTTGC ATTTAATTTA TGTTTCTTTG GATCCTCATT
6951 GCCTGAAAGC AGCATACTTA ATTTTTGTTT ATTTATTGTG A

FIG. 2J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CACCTATTTCCGACCCGACCGGAATGCGACTGGCTTGAGGTCCAGCCCTTTCGCCTGGGCGGGAGCAGAGCCGCGGAAGCTGCTTGGAGTTGGATGGGGGTAGGAAGGGGCTGGAGCGGG 360
AATCCTACGGTGCAAGTGGCCTGGGCCTAAGGTTGGGCATAATGGAGTTGCAGAGGACATCCAGCATTTCAGGGCCGCTGTCGCCGGCCTACACCGGGCAGGTGCCTTACAACTACAACC 480
M E L Q R T S S I S G P L S P A Y T G Q V P Y N Y N Q 27
AACTGGAAGGAAGATTCAAACAGCTCCAAGATGAGCGTGAAGCTGTACAGAAGAAGACCTTCACCAAGTGGGTCAATTCCCACCTTGCGAGAGTGTCCTGCCGAATCACAGACCTGTACA 600
L E G R F K Q L Q D E R E A V Q K K T F T K W V N S H L A R V S C R I T D L Y T 67
CGGACCTTCGAGATGGACGGATGCTCATCAAGCTACTGGAGGTCCTCTCTGGAGAGAGGCTGCCTAAACCCACTAAGGGACGGATGCGGATCCACTGTCTGGAGAATGTCGACAAGGCTC 720
D L R D G R M L I K L L E V L S G E R L P K P T K G R M R I H C L E N V D K A L 107
TTCAATTCCTGAAAGAGCAGAGAGTCCATCTTGAGAACATGGGCTCCCATGACATTGTGGATGGAAACCACCGGCTGACAACGTTGGAGCTACTGGAAGTGCGCAGACAGCAAGAGGAAG 840
Q F L K E Q R V H L E N M G S H D I V D G N H R L T T L E L L E V R R Q Q E E E 147
AAGAAAGAAAGAGGCGGCCACCTTCTCCGGACCCAAACACGAAGGTTTCAGAGGAGGCTGAGTCCCAGCAATGGGATACTTCAAAAGGAGACCAAGTTTCCCAGAATGGTTTGCCGGCTG 960
E R K R R P P S P D P N T K V S E E A E S Q Q W D T S K G D Q V S Q N G L P A E 187
AGCAGGGATCTCCACGGGTTAGTTACCGCTCTCAAACGTACCAAAACTACAAAAACTTTAATAGCAGACGGACAGCCAGTGACCATTCATGGTCTGGAATGTGAAGTTCACTACCATTTG 1080
Q G S P R V S Y R S Q T Y Q N Y K N F N S R R T A S D H S W S G M 227
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FIG. 3A

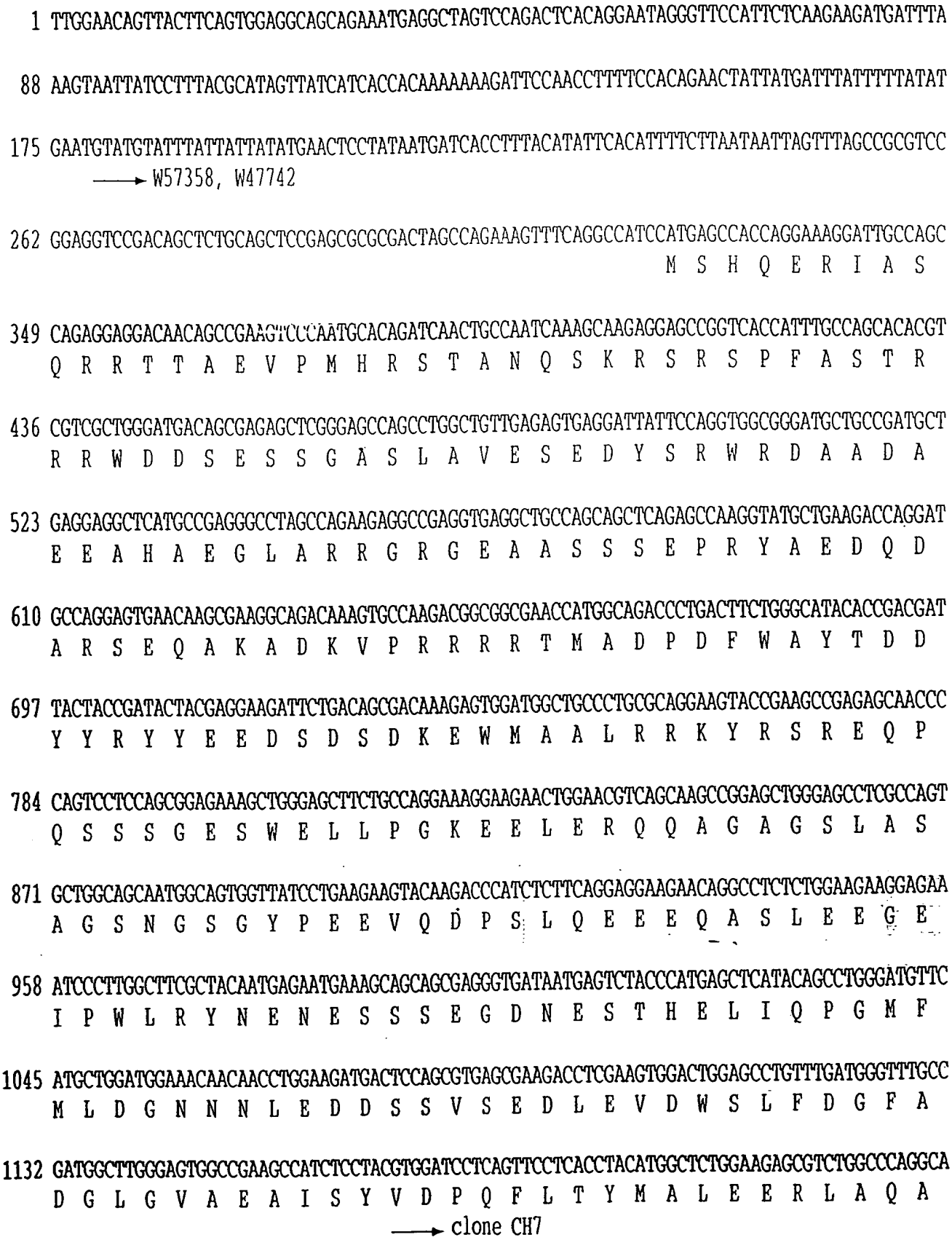
1 TTGGAACAGTTACTTCAGTGGAGGCAGCAGAAATGAGGCTAGTCCAGACTCACAGGAATAGGGTTCCATTCTCAAGAAGATGATTTA
88 AAGTAATTATCCTTTACGCATAGTTATCATCACCACAAAAAAAGATTCCAACCTTTTCCACAGAACTATTATGATTTATTTTTATAT
175 GAATGTATGTATTTATTATTATATGAACTCCTATAATGATCACCTTTACATATTCACATTTTCTTAATAATTAGTTTAGCCGCGTCC
W57358, W47742
262 GGAGGTCCGACAGCTCTGCAGCTCCGAGCGCGCGACTAGCCAGAAAGTTTCAGGCCATCCATGAGCCACCAGGAAAGGATTGCCAGC
M S H Q E R I A S
349 CAGAGGAGGACAACAGCCGAAGTCCCAATGCACAGATCAACTGCCAATCAAAGCAAGAGGAGCCGGTCACCATTTGCCAGCACACGT
Q R R T T A E V P M H R S T A N Q S K R S R S P F A S T R
436 CGTCGCTGGGATGACAGCGAGAGCTCGGGAGCCAGCCTGGCTGTTGAGAGTGAGGATTATTCCAGGTGGCGGGATGCTGCCGATGCT
R R W D D S E S S G A S L A V E S E D Y S R W R D A A D A
523 GAGGAGGCTCATGCCGAGGGCCTAGCCAGAAGAGGCCGAGGTGAGGCTGCCAGCAGCTCAGAGCCAAGGTATGCTGAAGACCAGGAT
E E A H A E G L A R R G R G E A A S S S E P R Y A E D Q D
610 GCCAGGAGTGAACAAGCGAAGGCAGACAAAGTGCCAAGACGGCGGCGAACCATGGCAGACCCTGACTTCTGGGCATACACCGACGAT
A R S E Q A K A D K V P R R R R T M A D P D F W A Y T D D
697 TACTACCGATACTACGAGGAAGATTCTGACAGCGACAAAGAGTGGATGGCTGCCCTGCGCAGGAAGTACCGAAGCCGAGAGCAACCC
Y Y R Y Y E E D S D S D K E W M A A L R R K Y R S R E Q P
784 CAGTCCTCCAGCGGAGAAAGCTGGGAGCTTCTGCCAGGAAAGGAAGAACTGGAACGTCAGCAAGCCGGAGCTGGGAGCCTCGCCAGT
Q S S S G E S W E L L P G K E E L E R Q Q A G A G S L A S
871 GCTGGCAGCAATGGCAGTGGTTATCCTGAAGAAGTACAAGACCCATCTCTTCAGGAGGAAGAACAGGCCTCTCTGGAAGAAGGAGAA
A G S N G S G Y P E E V Q D P S L Q E E E Q A S L E E G E
958 ATCCCTTGGCTTCGCTACAATGAGAATGAAAGCAGCAGCGAGGGTGATAATGAGTCTACCCATGAGCTCATACAGCCTGGGATGTTC
I P W L R Y N E N E S S S E G D N E S T H E L I Q P G M F
1045 ATGCTGGATGGAAACAACAACCTGGAAGATGACTCCAGCGTGAGCGAAGACCTCGAAGTGGACTGGAGCCTGTTTGATGGGTTTGCC
M L D G N N N L E D D S S V S E D L E V D W S L F D G F A
1132 GATGGCTTGGGAGTGGCCGAAGCCATCTCCTACGTGGATCCTCAGTTCCTCACCTACATGGCTCTGGAAGAGCGTCTGGCCCAGGCA
D G L G V A E A I S Y V D P Q F L T Y M A L E E R L A Q A
clone CH7

FIG. 3B

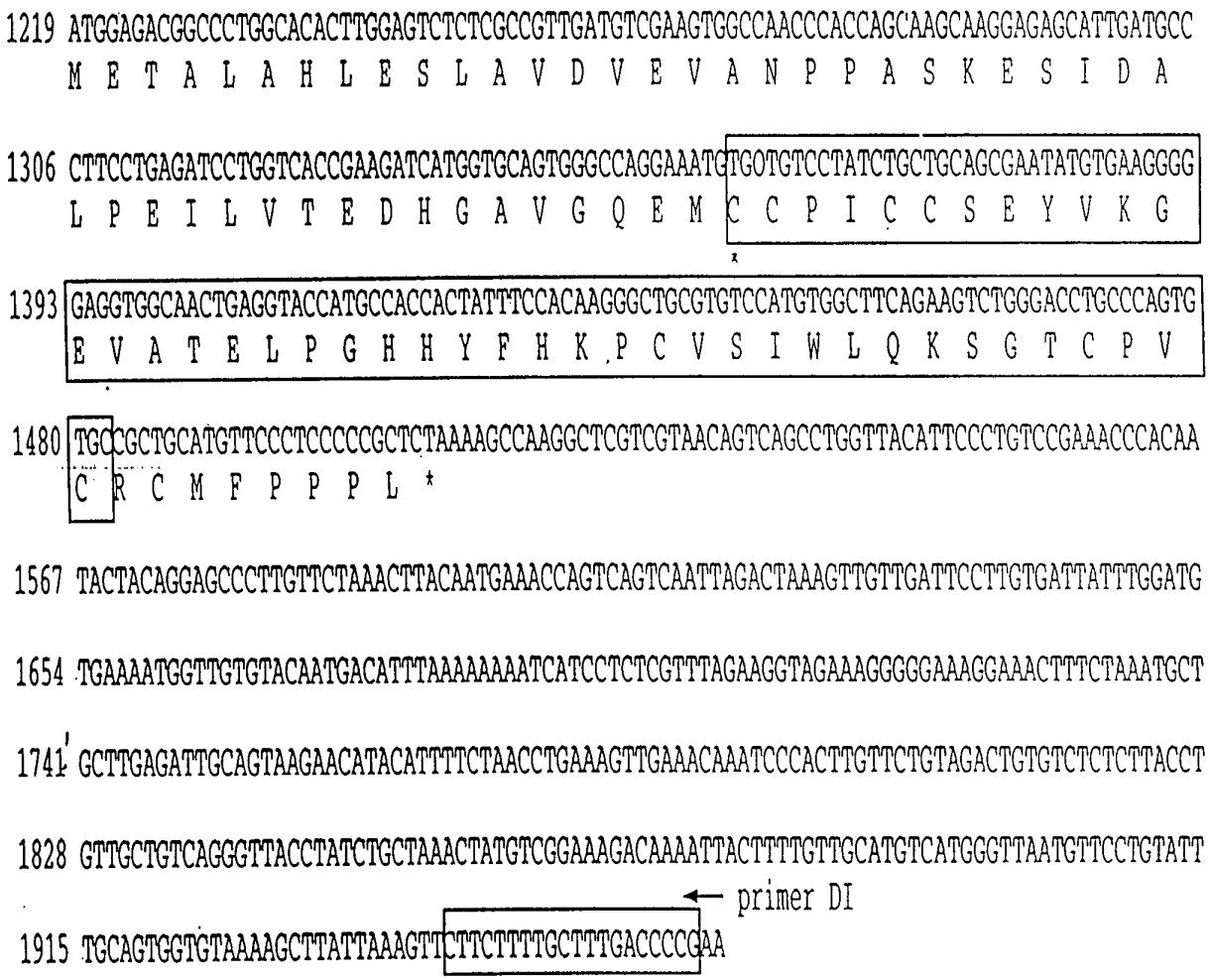
1219 ATGGAGACGGCCCTGGCACACTTGGAGTCTCTCGCCGTTGATGTCGAAGTGGCCAACCCACCAGCAAGCAAGGAGAGCATTGATGCC
M E T A L A H L E S L A V D V E V A N P P A S K E S I D A
1306 CTTCCTGAGATCCTGGTCACCGAAGATCATGGTGCAGTGGGCCAGGAAATGTGCTGTCCTATCTGCTGCAGCGAATATGTGAAGGGG
L P E I L V T E D H G A V G Q E M C C P I C C S E Y V K G
1393 GAGGTGGCAACTGAGGTACCATGCCACCACTATTTCCACAAGGGCTGCGTGTCCATGTGGCTTCAGAAGTCTGGGACCTGCCCAGTG
E V A T E L P G H H Y F H K P C V S I W L Q K S G T C P V
1480 TGCCGCTGCATGTTCCCTCCCCCGCTCTAAAAGCCAAGGCTCGTCGTAACAGTCAGCCTGGTTACATTCCCTGTCCGAAACCCACAA
C R C M F P P P L *
1567 TACTACAGGAGCCCTTGTTCTAAACTTACAATGAAACCAGTCAGTCAATTAGACTAAAGTTGTTGATTCCTTGTGATTATTTGGATG
1654 TGAAAATGGTTGTGTACAATGACATTTAAAAAAAATCATCCTCTCGTTTAGAAGGTAGAAAGGGGGAAAGGAAACTTTCTAAATGCT
1741 GCTTGAGATTGCAGTAAGAACATACATTTTCTAACCTGAAAGTTGAAACAAATCCCACTTGTTCTGTAGACTGTGTCTCTCTTACCT
1828 GTTGCTGTCAGGGTTACCTATCTGCTAAACTATGTCGGAAAGACAAAATTACTTTTGTTGCATGTCATGGGTTAATGTTCCTGTATT
primer DI
1915 TGCAGTGGTGTAAAAGCTTATTAAAGTTCTTCTTTTGCTTTGACCCCGAA

FIG. 4A

```
   1 GGGCAACTGA AGGCAGATGA AGAGCCCTGC CCCTGCCCAC ATGTGGAACC
  51 TTGTGCTGTT CTTGCCTTCA CTGTTGGCTG TGCTTCCGAC CACTACTGCC
 101 GAGAAGAATG GCATCGATAT CTACAGCCTC ACGGTGGACT CCCGGGTCTC
 151 TTCCCGATTT GCCCATACTG TTGTCACCAG CCGGGTGGTC AACAGAGCCG
 201 ATGCTGTTCA AGAAGCGACC TTCCAAGTAG AGCTACCCAG GAAAGCCTTC
 251 ATCACCAACT TCTCCATGAT CATCGATGGC GTGACCTACC CAGGGGTTGT
 301 CAAAGAGAAG GCCGAAGCCC AGAAACAATA CAGTGCCGCC GTGGGCAGGG
 351 GAGAGNGTGC TGGCATCGTC AAGACCACTG GGAGGCAGAC AGAGAAGTTT
 401 GAAGTGTCAG TCAACGTGGC CCCTGGTTCC AAGATTACCT TCGAACTCAT
 451 ATACCAGGAA CTGCTCCAAA GGCGACTGGG AATGTATGAG CTACTCCTCA
 501 AAGTGAGGCC TCAGCAGCTG GTGAAGCACC TTCAGATGGA CATCTACATC
 551 TTTGAGCCTC AGGGTATTAG CATCCTGGAG ACAGAGAGCA CCCTCATGAC
 601 CCCGGAGCTG GCAAATGCCC TTACCNCTTC ACAGAACAAG ACCAAGGCTC
 651 ATATCCGGTT CAAGCCGACG CTCTCCCAGC AACAGAAGTC TCAGAGTGAG
 701 CAGGACACGG TGCTGAATGG GGACTTCATC GTCCGCTATG ATGTCAACCG
 751 GTCTGACTCT GGGGGCTCCA TTCAGATTGA GGAAGGCTAC TTTGTGCACC
 801 ACTTTGCTCC AGAGAACCTT CCTACAATGT CCAAGAATGT GATCTTTGTC
 851 ATTGATAAAA GCGGATCTAT GTCAGGCAAG AAAATCCAGC AGACCCGAGA
 901 AGCCCTAGTC AAGATCTTGA AAGACCTCAG CCCCCAAGAC CAGTTCAACC
 951 TCATTGAGTT CAGTGGGGAA GCAAACCAAT GGAAGCAGTC ACTGGTGCAA
1001 GCGACAGAAG AGAATTTGAA CAAGGCTGTA AACTATGCTT CCAGGATCCG
1051 GGCTCACGGA GGGACCAACA TCAATANTGC AGTGCTGTTG GCTGTGGAGC
1101 TGCTGGACAG AAGCAACCAA GCTGAGCTAC TGCCCTCGAA GAGCGTCTCC
1151 CTTATCATCC TGCTCACGGA CGGTGACCCC ACTGTGGGAG AAACCAACCC
1201 CACGATTATC CAGAACAACG TGCGGGAAGC CATCAATGGG CAGTATAGCC
1251 TCTTCTGCCT GGGGTTCGGC TTTGATGTGA ACTATCCTTT CCTGGAGAAG
1301 ATGGCACTGG ACAATGGTGG CCTGGCCAGG CGCATCTATG AGGATTCAGA
1351 CTCTGCACTG CAGCTTCAGG ATTTCTACCA CGAAGTAGCC AATCCACTGC
1401 TCTCATCAGT GGCCTTCGAA TACCCCAGTG ATGCTGTGGA GGAAGTCACT
1451 CGGTACAAGT TCCAACACCA CTTTAAGGGC TCAGAGATGG TGGTGGCTGG
1501 GAAGCTCCAg GACCAGGGTC CTGATGTCCT CTTAGCCAAA GTCAGTGGGC
1551 AGATGCACAT GCAGAACATC ACTTTCCAAA CGGAGGCCAG cGTAGCCCAA
1601 CAAGAGAAGG AGTTTAAGAG CCCCAAGTAc ATCTTTCACA AcTTTATGGA
1651 GAGACTGTGG GCAcTGCTGA cTATACAGCA ACAGCTGGAG CAGAGGATTT
1701 CAGCGTCAGG TGCCGAATTA GAGGCCCTCG NGGCCCAAGT TCTGAAcTTG
1751 TCACTCAAGT ACAATTTTGT CACCCCTCTC ACGCACATGG TGGTCACCAA
1801 ACCTGAAgGT CAAGAaCAAT TCCAAGTNGC TGAGAAGCCT GTGGAAGTCG
1851 GTGATGGCAT GNAGAGACTC CCCTTAGCAG CTCAAGCCCA CCCCTTCAGG
1901 CCTCCTGTCA GAGGATCTAA ACTGATGACC GTGCTGAAAG GAAGCAGGTC
1951 CCAGATACCC AGACGCGGTG ATGCCGTTAG GGCATCTAGG CAATACATTN
```

FIG. 4B

```
2001 CTCCCGGATT CCCCGGACCT CCTGGACCTC CCGGATTTCC TGCACCCCCT
2051 GGACCTCCTG GATTNCCTGC ACCCCCTGGA CCTCCTCTTG CTTCTGGCTC
2101 TGACTTCAGC CTTCAGCCTT CCTATGAAAG GATGCTAAGC CTGCCCTCCG
2151 TTGCAGCACA ATATCCTGCT GACCCACATC TGGTTGTGAC GGAAAAAAGT
2201 AAAGAAAGCA CCATACCAGA GGAATCCCCN AACCCAGACC ACCCCCAGGT
2251 TCCTACTATT ACCTTGCCGC TTCCGGGATC CAGTGTGGAC CAGCTCTGTG
2301 TGGATATCTT ACATTCTGAG AAGCCCATGA AGCTGTTCGT AGACCCCAGT
2351 CAGGGTCTGG AGGTGACTGG TAAGTATGAG AATACTGGGT TCTCGTGGCT
2401 CGAAGTGACC ATCCAGAAGC CTCACCTGCA GGTCCATGCA ACCCCTGAAC
2451 GACTGGTGGT GACACGAGGC AGAAAANACA CTGAATACAA GTGGAAGAAG
2501 ACGCTGTTCT CTGTGTTACC TGGCTTGAAG ATGACCATGA ATATGATGGG
2551 ACTCCTACAG CTCAGTGGCC CAGACAAAGT CACCATCGGC CTCCTGTCCC
2601 TGGATGACCC TCAGAGAGGA CTAATGCTGC TTTTGAATGA CACCCAGCAC
2651 TTCTCCAACA ACTGGAAAGG GGAGCTTGGT CAGTTTTACC GGGACATCGT
2701 CTGGGAGCCA CCCGTCGAGC CAGATAATAC AAAACGGACA GTCAAAGTTC
2751 AAGGAGTTGA CTACCTGGCT ACCAGAGAGC TCAAGTTGAG TTACCAAGAA
2801 GGGTTCCCAG GAGCAGAGAT TTCCTGCTGG ACAGTGGAGA TATAGAACTG
2851 TTAGGAGCGC CGCTCCCTGC CATGTTGTCC TCGTACGCAG GCAGATGACA
2901 CCTTATGCCA ACAGGGACGC CTGTGAGGCC GAGACCTTGA TGGGAAGAGG
2951 ATGCTCCCTT GTTACAAATA AAGAAGGGCA GTGTGAACCC GA
```

FIG. 5

GGTGGCCAAGAGCAGTTCACCTGCTCTGGGGCAAGCCTTGCTTGTG
TTTTAGTGAGTCAGGGCCTCCCCAGGCAGTAAGATGTTGAGTGTGG
AGGCCCAGGCCGCTGACCTGCAGCCCTGTCCCCCACAGGCAGGCTG
CATGCTCTTCCCCCACATTTCTCCTTGCGAGGTGCGCGTGCTCATG
CTCCTGTACTCGTCTAAGAAGAAGATCTTCATGGGCCTCATCCCCT
ACGACCAGAGCGGNTTCGTCAACGCCATACGACAGGTCATCACCAC
CCGCAAACAGGTGTGCCAGCTGAGGGTAGNCTGCTCCTGCTCCTAC
CCTTGGTAGACCCACTGNCTCCCACTGGTGTGGAATGTGGCATCAA
GGCTGAGTCGGCGNCTGGGGAGGAGCTGTGACGANGCAGTGCCATA
CCCAAATGGGCTCGAGGGAAACNTAGCTTTATAGGGTTCAGAGGGG
CAGAACTAGAGGGTGGGGCCTGGGTGTAGAGGCAGGGCAGGAGTGG
GGTGGCAGGTTTGGCAAGAGGCCCAGAGTCTCTGGAGGGTCACAGT
GTTGATGACATCTTTCTNAGAANCCTGCTACTNGCTTAGNCAGCTG
TGGTCCTCTCTNCCACCTGGGGGATACCTGGCNACAGGCNGTGGGC
NNCGGGGGTGAANACTCTGGACCTGTTNAGANTGTCAACAACAAAT
TCTTGACATGGAGTGGTGTCATGGAGTGGNAGGAGGTGANCTGCCG
GGGACTGTGTGGACTGTTGNCCCTAAGCTGCCCTCCCCTGAAGTGC
CTTCTCGCTCTGCCCCAAAACCCAGACCTGAGCCCAACAGCCGGTC
CAAGAGGTGGCTGCCATCCCACGTCTATGTGAACCAAGGGGAGATC
CTGTGATTCCGGGTACCCCCGGGTGGCCCCATTGACAGTGCCGCCC
CCCTGGGGGAGGACTTCTGACTGATACCTCCTGTCTTGTGTGGCAG
GAGAACAGACCAGTGGCCTCGGAGGCTCTTCATGCAGCTCATTCCC
CAGCAGTTGCTGGTGAGGGGTCAGGGGATTCCAGGCTGGGGGTGGG
CCAAAGACCCTGTGGTGGGCTGGTTCAGAGGCCTGCCTGGCTTCCC
CAGCAAGCTAGGGTTCCATAAAGAAGCCCTCGGCCTTCCCCCAGAC
CACCCTCGTGCCACTGTTCCGGAATTC

FIG. 6A

GGCACGAGCTTAACTGTGCTAACTTCTGTGATGATCATGTGTGATGAGTATGTGCTCT
CATTTGATTTGTGGGAAAAAAGAAAAGAAAAAAATCCGAAGGACACAAAGAGGACT
AATCTTAAACCAGATATCTAGTAGTCACCAAAGCCACACTTTGAATTCGAAAAGCTT
AGCACTGTAGCTTAGCTCATGCTATCTTTTAAAGAGAGAATTTAATTATTTAATATAT
GGAAGGACATTAGGCTAGTGTGTCTGGCACATGGTATAAACTCAATAAATGGTGGAC
GTTATCAGTGCTACTATAATGAGTTTAATAATTTGGTTTCATCTCCTTTAATCAGACC
AGTGTTCACTACTAGCTGGGTCTCTGGAATAGGCACAGATATATTCATCTGGAGTGTC
ACACATACTCTGTGCGCGAAAGAGTTCAGAATAGCCCTTCAATAAGCCAATTACTCTT
GCTGTCATCCTTATTTCTTAACTTTCCCTTAGCGTTGCTTTTATGTATCAAACTTTTCT
TCCTTATTTTACGTAATACTTTTAATGACAACTTTCTAGAAATAAGAACTATACCCTA
AAAGATTGAAATATTCTTAGTTTTCTTTATCTACATCAGAAATTGTTTAGCTGATACA
ACATACTTATATTGTTTAAGGAATTCTGTTTAATACCTTGGTATTTATAATTTTCATAA
GTTTATTTGTATTAATAGGAACTCTTACAAAGAATGTATAGAAAATAAGCCCCATCAT
TTGTCAGTGTGACAATTTTCCCAGTGTTTAAATTGTTTAAGCTGTTTGTACCCCTATAT
AAGCTCTGTTCCTTCTTTGGCCCTTTCCCCCTTAGCCTAAATCTCCATTTTGCCTGACG
ATCTCTTCCCTGACAAAATGCCTGCTTCTGCGCACTGAGTCACAGTCTACTAAAATGC
ATTCCATTGTGCCCATGTCCCTCTTAATGTGATGACCCCAGACATGACCAGGGCAGAG
CACAGAGGGAGCATCACTTTCTTTGACCAGAGCATCTATTTCCAGCAATGCAGCCTA
AGGTCACATTAGCATTTTTGGCAGCAAAATACACCCTTGGCTCATGCTGTTATGCTGT
CAACCAAATCCTCCATGACTTTTTCACATGAACTCCCATTAAATAAGGCTTCCCACAT
CCGGTACGAATATAGACAGTAATGTGCAGTCTGGTGAAGTTATTTACATAAGTTCCTA
TTAAACATCAGCTAATCTATATTTATTATTTTAGAATATTGAGACAGATTTCTATTCC
CAGCTATATAGATATGGTTTTAGAATACTTTATTATTATTTTTTTTAATGTGTCTTCTCT
GAACCCGATAAGAACATAGTCCCAGACAATCTTTAAGTTCAGAGTCTTACAGTTTGT
ATAGAGACCTAGAGGCTAGCTATATTTCTTTAGACATCAACACATCATCAGATAGGA
TCCACCCAAGGCCTTACAAATCCTGTATACTGAAATGCCTTTTCCTGACGATATTCT
GGAGACTGTTAAGTGAATGCGCAGATCTGAACCGAGCCGAGCCTGTAGTGGGGAAGA
GCTAAAGCATGGCAGTTGTCTTCATCAATGATGGAGTCTTTCATTATGTTGTCTCAAA
AGACACATGCTTCAGCCCTGGGTCTCAAAACTCTCATGCTTCGGCCCTGGGTCTCACA
CTCCTGGCTTCCCGAGTGGTCATAGCTAAGACCTTCTCACACTAAATCCCAGGATGAG
CTCATGTTGATGTTCCTGCTTGCTTCTCTGAAATTGGCAGTTCTCGTGGGAAAAAAAA
TCTACTTATACTTGTGTGCTTCATAAAGCAACTCGGTAGCAGGGCTTAGGGGTGCTTC
GAGTGTGGCAGTGATAGAGAAGACCGATAAAGCGAAATCTATGATATCTCATACATC
ATTTTAATTATTTAAATTACTTTTGTTAGTACACAAAAGTATTTGTTAGTACACCCTG
TTTATCTATGTGTATACTCTACCTTTCGCATACACTGACTTCATTTCTTTTTCTCCTCA
CCCATCCTGATGAGCTGCTCTCCTCCCAGACAAGCTCTGGCAGTTTTAAAGTCACGTG
TGTATCTTTTAACTCTAGCTTCTGCCTATTAGACAAAACAAGATACTTGTCTTTCTCCC
CATCTCCCTCCTTTTGTTTAATTCTCCTCCAGCCCTACATGGATCCCCCTTGACCTCGT
GTCATATATCTAAATCTGTATAAATAAAGAGATGATTTAATCTACGTTCTATGTACAA
AAGAGAATATAAATGCTCGTCTTTCTGAATCTGTCTTATTTGGTTTCACACAATATCT

FIG. 6B

GCTCTCTTTTACCGCAAATGGTATCATCTCGTTCCCTTTACACGTTGAAGAAAATTTC
ATTTTGTGTGTGTGTGTGTGTGTGTGTGTGAACTATATATTTTTACGCTATCTGGTG
AGGAACATCAAGGCCAAGATATGGATCTTGGCTATTGTAAAGAGTGTAGTAAGAAAC
ACAACCGTATAATCATCTTCTGTTGCATGCTGGCATGCTGGCTACAATCCTCACCTGTG
TACCCAGAGTGAGAGCTGGACCACATGGTAATGCAACCTGTAGTTATTATTTAATGT
GTACTTCTTGTTTAATGTTTAAAGATACTACTTATTTTAATGTTATGTGTATGGATGTT
TTATCTATGTGTTTGTCTGTATATAGTGGGCACGTACTGGTCTCAGAGCCAGAGGAAG
GCATCAGAGTCCCTGGGGTTGGAATTAAAGATGTTTGTGAGTACCTGCGTGTATCCTG
GACTTCAAACCCGGGTCTTCTTCAAGAGCAGCCAGTGCTCTTAACCACTGAGGATCTC
TCCAGCCTCATCGCTGATTTAGGAAGGACTTTTACTGATTTGGAGTAGCTGTAGGCAA
TGCAGTCTATGACGATTTCCTTTTAGCAGTTCTTGTTTGTTTTCTTAATGATAGCCATA
CTGATTGCTGAGATTTACAGCAGCACTAGCAAGCTGGAA

FIG. 7

```
CTCGAGTTTTTTTTTTTTTTTTT GGAGAAGGGNAACATTTATTCATTC    50
AACAAATNTTGATGACCTGATGGGGNAGATAACTGAGCTAGTCAGCGCGT  100
AGGTAGCAAACATAAGGNTATAGTACCCCAGNTAATGGTCTNCCCACATG  150
TCACTGAAGGAGTGTCAGTTCTCAGCATTTTACCTTTAATTTTAATTTTT  200
ACCTCTAAATGCGCTTTAGGAGGCTACCCACAGTTGATGACAAACAGTGT  250
AGCCAGGCATGCCAGAACTGTTACCAGCAGAACTTTTGGCCGACTGTAGC  300
TGGCAGTGTTCTCAGTAGTGCAGTTCATGCCTGGTGGGTGTAACTAGGGT  350
ACAACGAAGTCACTTTGAACTCTTTTGCTAACTAAATAAGCCAAATAAAC  400
AAATCATGAAATACTGATTAGCAATGCAATATTTCATGGCATGGGAAGAG  450
CTTCGACTTCTCCATCGGTGACAAGGAGCAGCTTCTGGAAGGAAGGTCTG  500
GAGAAAACAAGTGACGGGGAGCTCCGAGGAGCCCTGAACACGTCACTCAA  550
CAGCACTGGCGTTGACACAGCTGCTGTGGTCCAGCAGTCACTCAGTGGAG  600
AGTGCCAAAGGGTGGGCAGACAGNCAGNCCTACTTCTTCATCTCCAGGAT  650
GGCACTTCCAGGCCCACGGTTCTTAGCACTACAGATGTTGCAGTATTGTG  700
CAGGAGCATTCATGCTCGGCATAGGCAGGCACTCCTTGTGGAACATGTGC  750
CGGCAGTGGAAGACCACCACGCTGAAGGGCTTCNCTGCATCTGTTGGGAG  800
GATGGGAGAAAGGCATGATTCACAGATATTCTCTTCATCAACCAGAACGC  850
CTTTCATTTGGGTTCGGNGCATTTTTTCACACACCAACGACAATGAGTCA  900
GCTACGAGGATTTTCTTGCAGCCTTCCCGAAGCAGAATCTTCAAGTTATA  950
ATCTTGCAGAATTTTAACCAAGGAATCTCTCAAATTGGGAATCTCCATTC 1000
CTTCCTTAATTCGGTGGATAAGTAGAATCGGGTCCACATGTGTGCCAATG 1050
TTGTTCAACAAGCCAGTGATAAATGGTGGTTTGTCGATGGAGTATAGAAT 1100
CAGATCTTCTCGTGCCGAATTC                               1122
```

FIG. 8

```
CTCGAGAGATGCCCCACAGTCCCTCAGGACCCGAGTCAGGTAATCTGCCT  50
TTGGCCTTAGTGACCTCCTTTTCTGGGCGAGTATACCATCCACTTTCCTC 100
CCTGACAGGCAGTTCAGTAACCCAACCCTTTCATTCCTCCTTCAGTTGTC 150
AAAGACAAGTTAACATCCAAGACTAACAAGCAAGATGACTCAGGAGCATG 200
GNCTCTGGGTTCCCCTGGCACCATGCATGGTGATGCTAGTTAAGGCTGAC 250
TTAGCTCTTAGCAACCTTGGTTGGGATAGCTTAAGCTCATCTCCACTTTC 300
CTACCAAACAGAAAAGAATTTGAGTCCTCTTGCTATGAGGCTCTCGCTCC 350
CATCTCAGGCGAGCTTCCTGCCCCTCACCCAAGCTTGGGAGGTAGAGTTA 400
TGGAGAGGGCAAGGAAGCAGGACTGGAAAGATAGACTTATGGATCCACCA 450
CTCATAAAGTCACAAAGTCCCCTCACACCTGCTAGACTTAGACTCTAAAT 500
CATTACGTTGTCACCAACAGAGGTGACTCCTCAACCACAAGAGCCTGTAG 550
TGAGCTTCAAGAGAGAAGAGGACAAGNCAGACCTGGACTGCATGACCTTG 600
CACCTGTGATGAAGTCACAGCAATAGGTGATGCTCAAAAAGCCCCAATAA 650
AATGCAAGACAGNCAAACAGAAGCCCTGTCTGTCCCCATTGGTGGGTAAT 700
GTAGCTGATGTGGCTGGTTCTCCTTCCTTGACTTCACCCTGACTATGGGA 750
ATTGTCCTTCAGTGCCTCGTGCCGAATTC                       779
```

FIG. 9

```
CTCGAGAGGTGAAGGCAGAAGTATCACAAGTTCAAGTTCAAGGNCAGCCT    50
GGGCTTCACAAGACCCAAAAAAATAAATATGAGGNCAGTCCAGGCTGGGA   100
CTCAGGTCACTGCTGTGCTGAGCCATCGTCAGAGAAGTTTCTTCTTTNNT   150
TTTGATAGGAGCTAACACAGCGACCCACANCTGGACAGNCTGCAGTGAGT   200
GAGTGAGTAAGTGACCTAAAAGTGATGTCTTCATTAATCTCCCCTCCCCA   250
GGCNTCAGGGAGCTCTGAGGAAGAGGAGGCAGAAAGATGGTGAGAGCCAG   300
CAGGGATGGAGGACACCAAGGAAGCAGTGTCTTCCGACACAACAGGACTG   350
GCATTTAGGAAGTCACAGAGGCTGTGGCTGCCCAGGGCCTGCACGGTCCA   400
AGCTGGCTGAGATTCCAGTGCTGAGAGAGACAATTCAACACGGNCTCCCA   450
CCCCTAGNCAAGAAGTTATCTCCAACTGATATCCACTTGCAAAGGAAAAA   500
ATTAGGGGGNTAGAGAGATGGCTCAGTGGNTAAGAGCACTGACT.....   544
..................................................   600

.....TANAAAATAGAAATNGCANATTNGNTNNGANGTTNGCNAAATNGC  1200
TGAGAAATGGCCAATTGGCTGGAAAACTTGCAACATTGCCTGGAGAACTG  1250
CCAAATTGCCTGGAGAGCTGCCAAATTGGCCTGGAGAGCTGCCTACATGG  1300
CCTGGAGAGCTGCCCACATGGCCTGGAGAACTGGCTACATGTCCTGGAGA  1350
GCTGCCAACATGTCCTGGAGATCTGCCTACATGGCCTGGAGAACTGCCTA  1400
CATGACCTGGAGAGCTGGCCACATGGCCTGGAGAGCTGGCTACATGACCT  1450
GGAGAGCTGNCTACATGGCCTGGAGAGCTGGCTACATGGCCTGGAGAGCT  1500
GGCTACATGGCCTGGAGAGCTGGCTACATGGCCTGGAGAGCTGGCTACAT  1550
GGCCTGGAGAGCCTCCCAGCAAGGCCTCTCTAAGCCGAATTC          1592
```

FIG. 10

```
CTCGAGATGCATTAAAGCTTTGNTGCAGAAGGATCCGAGTGTGTCCTGTG    50
TGTGTGTCCTCACTGGCGAGACCCTTTATCACACAGGGACACCCCTTAGG   100
TTGGAGTTTTCCTTGTAATGTCCACTATACGTCTGCTTTATACAATAATA   150
TTGNTTAAATTTGNCTCTATCATGAAATACCTCACTTTCCTTATCTGTAT   200
TGATTGAAAGTTTTGGTGGATGTAATAGTTTGGGCTTGGATCTGAAGTCT   250
TTTAGAGTTTATTGGACATGTGCCTNGATTCATTGGNTTNAAAATCNTCC   300
ACNACTTGGGGGTGTAAAGGTTACCCACNCNATTANTGGAGGTTCTTCTG   350
AGTTCAGAGANAANGANTGAGCCACCNGGAATTCT.....             400

.CCCTAAACACACTTTGATCATTTCCTGCCTAACCCTGCAGAGGAAATAT  1550
TAATACCCTGTAGTACCAAAGGAAACAAATAAGAAGGAAGACTGNTCTCT  1600
CATGTCTGGAGGAAGTTTGGTGAAGGAGTCTTCTGTTTGCTCACATAGGA  1650
GAGATCTAATACAGCCACTATCCATAATTAAAAATCTCTGTGAGAGAGGC  1700
ATGACGAGGTTCTCCCAGTCTGTCAAGGGATGTGAATATGTGTTNCCCTG  1750
```

FIG. 11

```
GAATTCNGCNTTGGGGTACATGGACCNGGAGAGCTTGGNTACATGGCCTG    50
GAGAGCTGGNTACATGGCCCGGNGAGCTGGTTTNATAAACCTGGGGANGT   100
TGGGTTNAATGGCCCCGGGGANGTNGGTTNAATANACCNGGGGAGG....   146
.........................TGTCTGAAAANAGTGGNCACGTACT   200
GTTCTCAGACCCAGNGGAAGNCATCAGAGTCCCCTGGGGTTGGAATTAAA   250
GATGTTTGTGAGTCNCTGCGTGTATCCTGGACTTCAAACCCGGGTCTTCT   300
TCAAGAGCAGCCAGTGCTCTTAACCACTGAGGGATCTCTCCAGCCTCATC   350
GCTGATTTAGGAAGGACTTTTACTGATTTGGAGTANCTGTAGCCAATNCA   400
GTCTATGACGATTTCCTTTTAGCAGTTCTTGTTTCTTTTCTTAATGATAG   450
CCATACTGATTGCTGAGATTTACAGCAGCACTAGCAAGCTGGAACTCGAG   500
```

FIG. 12

```
CTCGAGNTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT   50
TTTTTTTTTTTTTTTNNNNNAANAAANTTTTAAAGTTTTTTTTTTTTTAT  100
NAAAANNTTTCCAAGGGGGGGANGGGTTAGAAGANAGCCANAGCCTGGNC  150
CCCCCTGCCAGAAAAAACCAGAGGGGGGTTGATGTCCCCAAGTCCAGTTG  200
TCACCCTGAAGAAGTTCCCCACGATTTCCCTGGTGGCCCCCCGGGAGTAC  250
GTCCAGAGTGTCACCCTTTCCATTTGGGAGCTGTGGGAAGGGNGTGGGNT  300
CCCTCCCAGNGGGGCCCCAAACCCTTCTCCTGAACAGNTCCTGATTTCTG  350
aCCATCTTTCCAATTCCACGGATTCAAAGAGCATGACCCTAGGTAAGCAA  400
GCCAGGTCAAGAGCATTGCTTGtCTGNAGGAAAAGGAAGGGTCCCTCCTG  450
GcCTCGTGCCGAATTCC                                    467
```

- EMBRYONIC LIVER FODRIN OR BETA SPECTRIN, *elf* 1,2 & 3
- SPECTRINS ESTABLISH AND MAINTAIN EPITHELIAL MEMBRANE SKELETON, CELL POLARITY, SPECIALIZED-CELL DOMAINS: AE2

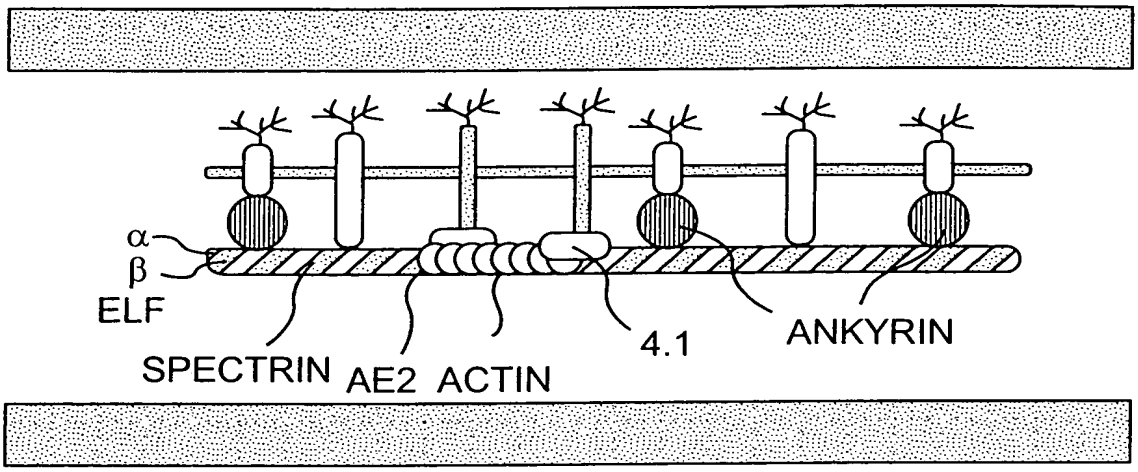

FIG. 13

GRAPHIC REPRESENTATION OF KNOWN ALTERNATIVELY SPLICED PATTERNS FOUND AMONG *elf* TRANSCRIPTS

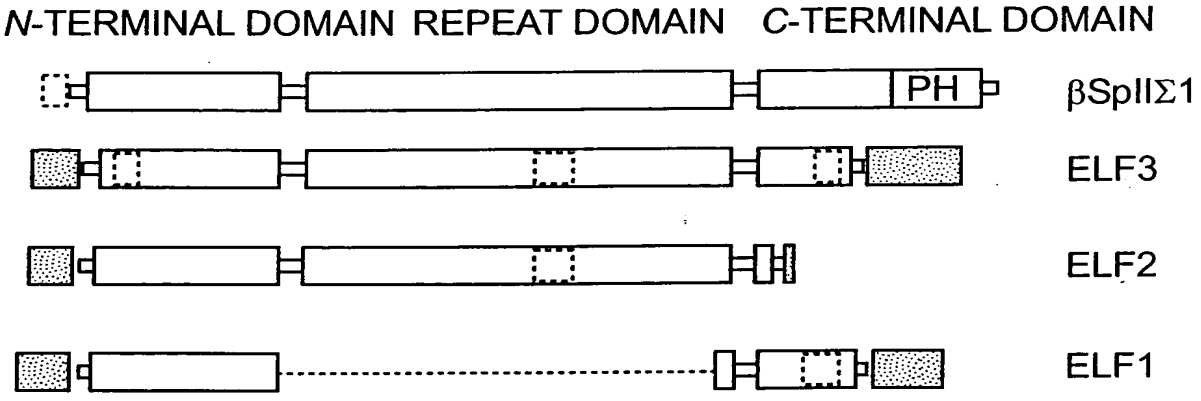

FIG. 14

ELF LABELING IN PRIMARY BILLARY CIRRHOSIS

FIG. 15A

ELF LABELING IN PRIMARY BILLARY CIRRHOSIS

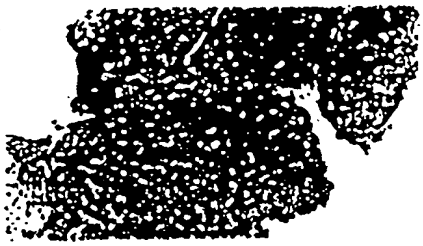

FIG. 15B

ELF LABELING IN PRIMARY BILLARY CIRRHOSIS

FIG. 15C

ELF LABELING IN PRIMARY BILLARY CIRRHOSIS

FIG. 15D

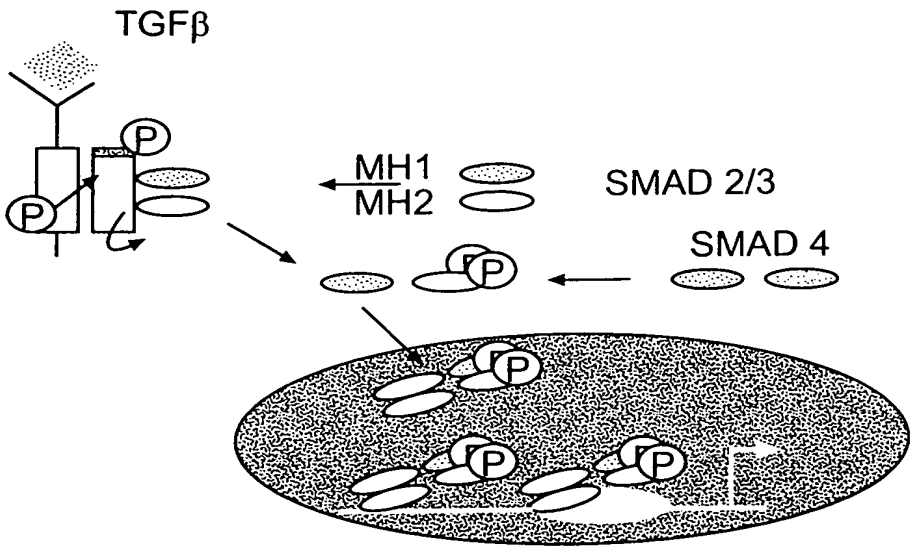

FIG. 16

α=FETO PROTEIN LABELING CELLS OF HEPATOCYTIC LINEAGE IN WILD TYPE VS. SMAD2$^{+/-}$/ SMAD3$^{+/-}$

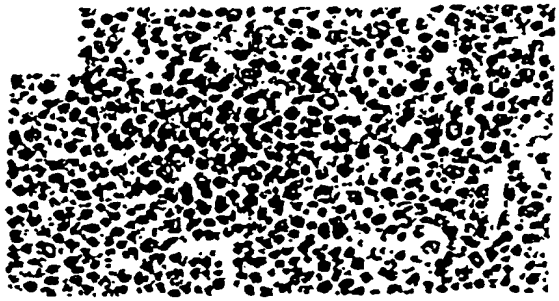

FIG. 17A

α=FETO PROTEIN LABELING CELLS OF HEPATOCYTIC LINEAGE IN WILD TYPE VS. SMAD2$^{+/-}$/ SMAD3$^{+/-}$

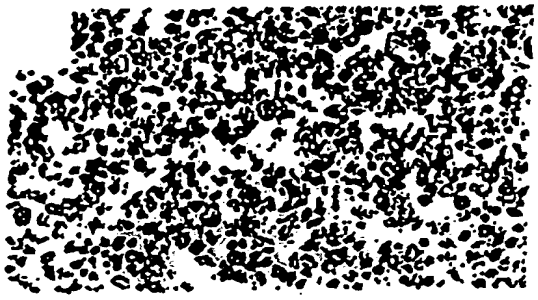

FIG. 17B

SMAD 2 & SMAD 3 MUTANT EXPLANTS SHOWED INCREASED APOPTOSIS AND VERY FEW VIABLE HEPATIC TISSUE

FIG. 18A

SMAD 2 & SMAD 3 MUTANT EXPLANTS SHOWED INCREASED APOPTOSIS AND VERY FEW VIABLE HEPATIC TISSUE

FIG. 18B

HGF TREATMENT RESCUES PHENOTYPE OF MUTANT LIVER EXPLANTS AS SHOWN BY CYTOKERATIN LABELING

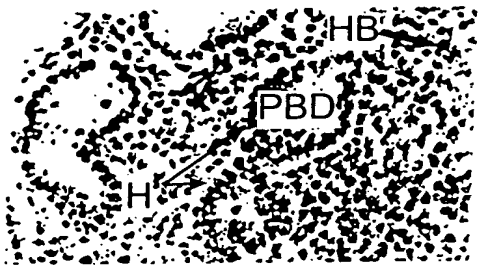

FIG. 19A

HGF TREATMENT RESCUES PHENOTYPE OF MUTANT LIVER EXPLANTS AS SHOWN BY CYTOKERATIN LABELING

FIG. 19B

HGF TREATMENT RESCUES PHENOTYPE OF MUTANT LIVER EXPLANTS AS SHOWN BY CYTOKERATIN LABELING

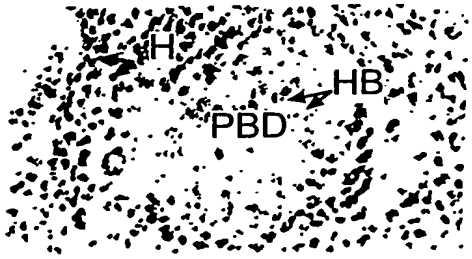

FIG. 19C